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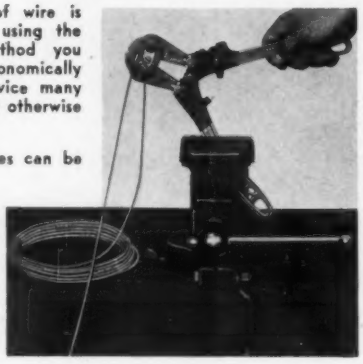

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TELEPHONY

The Journal of the Telephone Industry

April 25, 1942 **IN THIS ISSUE** **Vol. 122, No. 17**

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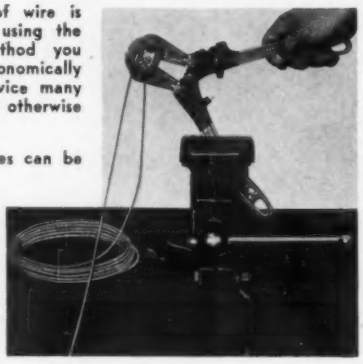

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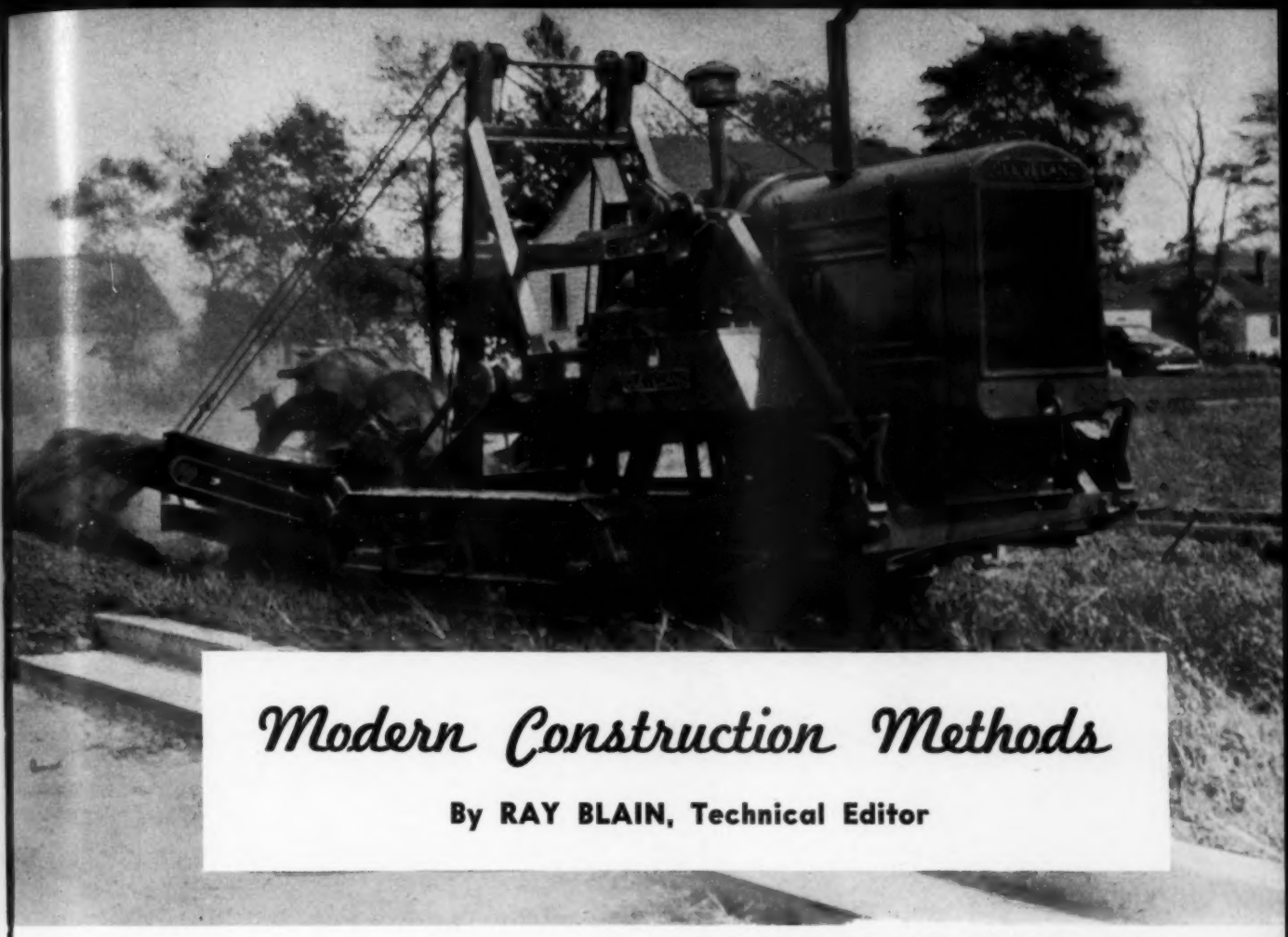


Modern Construction Methods

By RAY BLAIN, Technical Editor

Trenching machine digging ditch for a new underground conduit line.

SOMEONE has said, "We must not get there too late with too little" which only confirms the old civil war saying, "We must get there firstest with the mostest." We are now experiencing total war and all telephone companies are endeavoring to render the most efficient service during the present trying times and to prepare for whatever may be in store for us in the future.

Telephone communication plays a most important part in the affairs of our country during wartime and often facilities must be expanded on very short notice. Providing such facilities in the least possible time by the use of modern machinery will be described in this article.

Many small telephone companies claim that they cannot afford to purchase expensive machinery and often this is true. However, in such cases, it is almost always possible to have construction performed on contract by a firm equipped with modern labor-saving machinery. Also, it is often possible to hire such machines as a trencher or earth boring machine at a specified charge per hour or per day. Man power is scarce even now and it may be difficult to obtain in the very near future so that every effort should be made now to utilize labor saving machinery for telephone construction whenever possible.

To all who have dug pole holes by the shovel and spoon method, the earth boring machine is a marvel of this modern age. This machine will dig a six-foot hole in about three minutes and often this is a half day's work for a good man. Also, when a hole is machine dug, it is straight and accurate and easy alignment of the pole is possible. The earth boring machine may also be used to dig anchor holes at any angle.

The modern earth boring machine may be arranged in various ways to best meet specific needs. The drill may be truck mounted and operated by a power take-off from the truck engine. Also, the truck mounted drill may be equipped with its own gasoline engine which operates independently of the truck motor or when considered desirable the drill and its engine may be trailer mounted.

For special construction jobs or for use over rough terrain, the drill and a pole derrick may be mounted on a caterpillar tractor. Earth boring machines equipped with standard augers usually bore a hole 12 inches in diameter by six feet deep. Special equipment may be provided to drill holes up to 42 inches in diameter and to a depth of 24 feet and even deeper. Seldom, however, are holes over six feet deep required on ordinary telephone work.

We frequently hear the remark that an earth boring machine cannot dig holes in a certain locality although this seldom proves true. The modern drill can dig

Rear view of a truck mounted with earth-boring machine.

through hard pan, clay and various impervious materials. It is true that large rocks do stop even the best earth boring machinery, but they likewise often stop a man with a digging bar and power drills, in which case blasting becomes necessary. However, records over a period of years indicate that earth boring machines can dig practically all of the pole holes on a line in most sections of the country.

Reports received from various sections of the country seem to indicate that underground cable construction for telephone distribution is on the increase. Even when new facilities are required on short notice it is often found that underground construction may prove both economical and expeditious. Various factors will govern the choice between aerial and underground such as availability of poles, soil conditions and the type of service required. Buried cable either plain lead or steel tape armored is now extensively used for certain types of plant. However, conduit should ordinarily be used when future expansion is a possibility. Buried cable is cheap, does not require manholes and often solves serious problems when increased facilities are required in the least possible time.

Hand digging of trench for the burying of cable on large jobs is practically an impossibility at the present time. Power-operated trenching machines will often pay for themselves on one job. A small light weight digger which has proved especially suited to telephone work digs a trench to a depth of five and one-half feet and from 11 to 23 inches wide.

This machine has a digging speed of .4 to 29 feet per minute depending on the depth and width of the ditch and soil conditions. This particular digger weighs approximately 9,500 pounds and has a ground bearing pressure of only 7.4 pounds per square foot. A smaller digger which will dig a trench three and one-half feet deep and from nine to 12 inches wide and which only weighs approximately 7,000 pounds often proves adequate for telephone use.

When a trenching machine is used, the ditch is smooth and accurate and the laying of the conduit is greatly simplified. Many a conduit job has gone bad because the bottom of the trench was not properly leveled. The smooth level trench is not so important for the installation of buried cable; however, it does insure that it is covered with a uniform thickness of earth.

When the cable or conduit has been placed in the ditch, it is then ready for backfilling and tamping. Not only does this filling of the trench present considerable labor, but the loose earth must also be tamped to prevent later settling, which often causes trouble. A machine mounted on a caterpillar tractor which may be used to backfill and tamp a trench is now available. This machine may operate from either side of the trench and the scraper used to push or pull the dirt into the ditch. A light weight scraper may be used when the dirt is piled on lawns or sidewalks to prevent damage.

The tamping device used with this backfiller drops a weight of 175 pounds 45 times per minute, with a resultant impact of 380-foot pounds. Due to the arrangement of the gearing, these blows overlap considerably and both the force of the blows and their regularity are held uniform. It is claimed that this machine can replace as much, or more, earth in a trench than was originally removed.

It is always desirable to tamp a trench in layers. However, due to the greater force obtained from this machine tamper, these layers may be of a thickness three or four times greater than when tamping by

(Please turn to page 38)

Gasoline-operated hammer drill in action.

By **DANIEL SEITZ**
Cable Superintendent,
York (Pa.) Telephone & Telegraph Co.

Approved Maintenance Practices

PART XVII. This installment discusses the proper support of cable in manholes and vaults, and the protection of lateral and main cables on poles or buildings as well as underground. The preceding article in this series was published in the April 4 issue, page 9.

THE PROPER support of cable in manholes should always receive careful consideration. The main cables, which are usually of larger sizes and of greater weight, should be supported by racks and hooks spaced close enough to prevent sagging. This is important due to the fact that vibration from highway traffic is often transmitted from cast iron covers of the manholes to the concrete or brick walls to which the racks are attached. Continual vibration of this nature may cause the cables to sag between supports and in time break the sheath.

The smaller lateral cables which do not have mechanical strength or weight of the main cables should be attached to the manhole walls by the installation of cable dogs of proper size, spaced 18 to 24 inches apart. These dogs are available in various sizes to fit cables from 10 to 200 pairs.

The riser portion of lateral and main cables either on poles or buildings should be properly protected against mechanical injury. The use of wrought iron pipe provides excellent protection for the cable, but makes repairs difficult when the fault is located in the riser portion. This is especially true when the cable is of such size that a new section cannot be drawn into the same pipe to effect repairs. When a spare rise is available, a new cable may be placed in it and the faulty one removed after the working lines have been transferred to the new cable. Many faults may be easily cleared if the cable can be exposed which, however, is impossible when enclosed in pipe.

Galvanized steel shields as indicated in *Fig. 1* permit the cables to be exposed and repaired, thus eliminating costly replacement. The shield and shoe at the base of pole are made of three thirty-seconds-inch galvanized steel. For added protection, a length of half-round fibre is placed inside the steel shield. This fibre shield is not an absolute necessity although it prevents the cable from coming in contact with the high resistance ground through the metallic shield. Riser cables should never be placed on the face of the pole where they are exposed to possible damage from highway traffic.

When planning central office cable entrance installations in vaults, etc., the support and placing of future cables should be carefully considered. This is necessary in order that when new cables are added from time to time they will fit into the ultimate plan and permit adequate space for splicing. Splices which connect the paper insulated to the silk and cotton main frame cables should be placed in a horizontal position, wherever possible. The wiping of joints on upright splices is always difficult even for experienced splicers and should be avoided whenever possible. The building of gas dams is also facilitated in horizontal cables.

The protection of underground cable against mechanical injury and the method employed should be governed by the location and importance of the cable. Multiple tile, fibre or cement-asbestos conduit is usu-

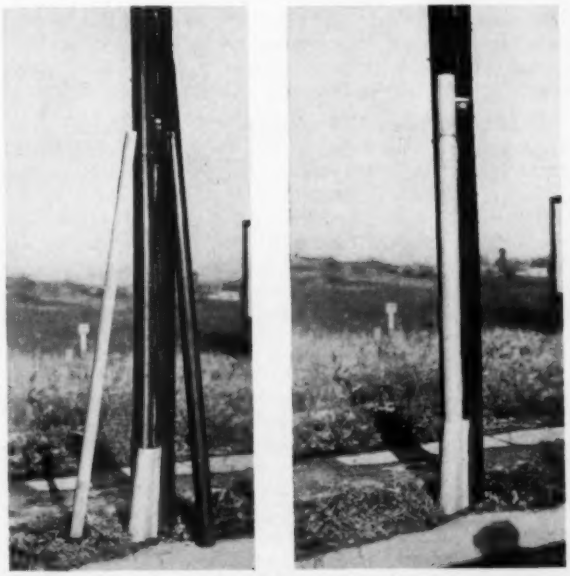


Fig. 1. Left view shows riser cable with protection removed except boot and base of pole. This is also easily removed. Right view shows the riser cable with protection in place.

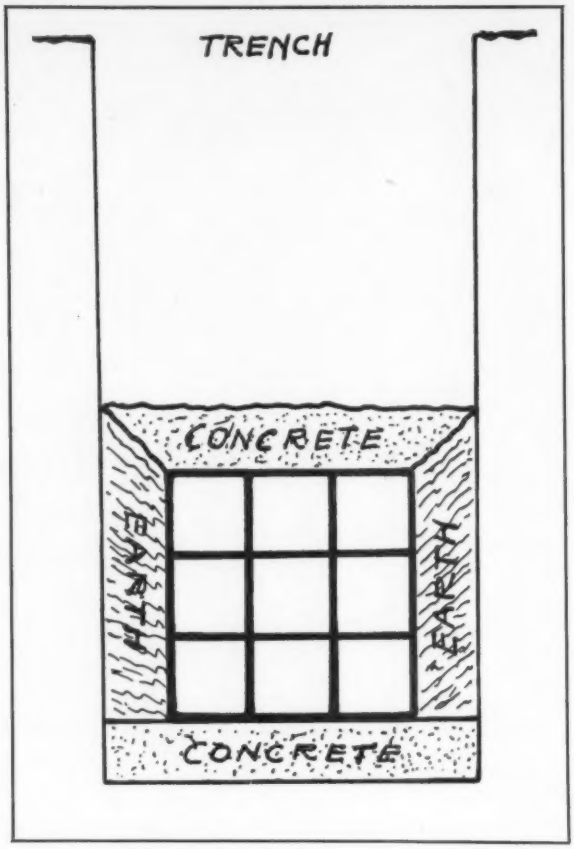


Fig. 2. Drawing shows nine-way tile conduit duct with three-inch concrete protective cover and a three-inch concrete base.

ally considered necessary to encase cables run underground through cities or other thickly populated areas. Conduit may also be considered necessary for some cross-country cables. Buried cable with steel tape and jute protection over the lead will, in many instances, prove satisfactory and economical for cross-country cables when the ultimate needs may be accurately forecast.

Multiple tile conduit affords little mechanical protection for a lead cable unless it is provided with a concrete or creosoted wood cover. When using the concrete protecting cover, it should be at least three inches thick and extend beyond each side of the tile about three inches. Creosoted wood planks about two inches thick and the width of the ducts will afford reasonable protection. A concrete top protection may be constructed without the need of costly forms in the manner indicated in *Fig. 2.*

When it is necessary to change grade or alignment of a conduit run, special attention should be given to the dowel pin connections between the duct sections because one side of the joint must remain separated according to the radius being constructed and will pull out of alignment unless care is exercised. Conduit joints of this type are likely to injure cable sheath when it is pulled in. Joints which are out of line also reduce the actual usable size of the duct in proportion to the error in alignment. For instance, a three and one-half inch duct one-quarter of an inch out of line is equal to a three-inch duct. Also, when it is necessary to cut a section of clay conduit at manhole entrances or elsewhere, the inside edge of each duct should be tapered slightly to prevent later injury to the cable.

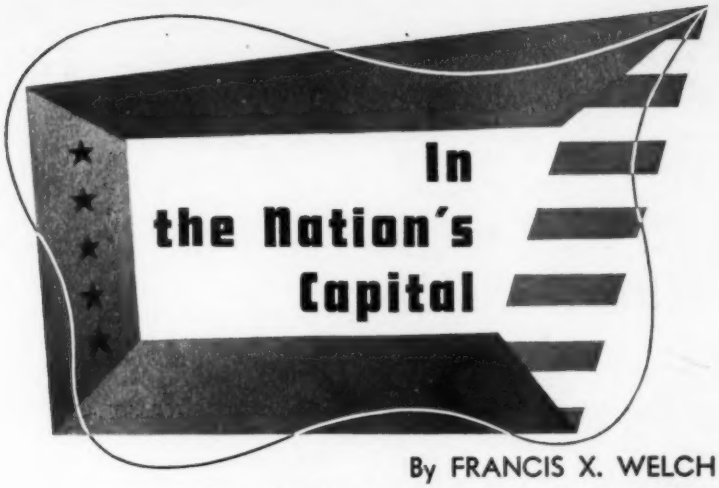
When possible, manhole locations and sizes should be arranged to reduce the necessity of cutting clay conduit to a minimum. Conduit joints should all be carefully wrapped with a suitable material before plastering with mortar. Careless work in this connection may permit plaster to project into the conduit and cause damage to the cable later when it is being installed. Clay conduit is available in two-, four-, six- and nine-duct multiples which may be used to provide almost any combination. Clay conduit may also be obtained in sizes to accommodate up to the largest present-day cable.

When designing a conduit run, future growth should be considered with regard to the ultimate number of cables which might be placed to care for the future growth with at least one spare always available for emergency replacement of cable. The placing of additional ducts in an existing run is always costly and often difficult. The size of the ducts is also important as cables of larger size are continually being manufactured. This does not necessarily mean that with each increase in pairs the outside diameter may be increased, but it does often prove desirable and economical to include a complement of pairs for toll circuits which are usually of a heavier gauge and, to obtain lower mutual capacity, have heavier insulation and greater space between conductors.

It proves more economical to provide ducts of adequate size than to be forced to place additional cables

(Please turn to page 37)

Fig. 3. A 30-foot radius formed by using 24-inch lengths of fibre ducts. These ducts will be encased in concrete.



By FRANCIS X. WELCH
Washington Correspondent for TELEPHONY

Impressive showing made by Harold V. Bozell, J. H. Agee, and Clyde S. Bailey before House Ways and Means Committee to present Independent industry's views concerning new federal corporation and excise tax proposals. . . . Testimony heard by House committee on Sanders bill to reorganize FCC.

REPRESENTATIVES of the Independent telephone industry made an impressive showing before the House Ways and Means Committee on April 13 in presenting the views of the Independent telephone industry concerning the new federal corporation and excise taxes. The principal statement on behalf of the Independents was made by Harold Bozell, president of the General Telephone Corp. An introductory statement was made by Clyde S. Bailey, vice president and Washington representative of the United States Independent Telephone Association. John H. Agee, vice president and general manager of the Lincoln (Neb.) Telephone & Telegraph Co., also testified.

To sum up Mr. Bozell's statement, it would appear that the Independent industry is more fearful of the new corporation taxes proposed by the Treasury than of the proposed increase in excise taxes on the monthly telephone bill. The witness pointed out that telephone rates are relatively inflexible—being under close control by regulatory bodies. This means that the telephone industry is in a particularly disadvantageous position in any attempt to recoup or offset new tax burdens through rate adjustments.

Mr. Bozell pointed out that it is characteristic of the telephone business to have a moderate rate of return that "can never be increased much and is never allowed to be excessive." In 1941 the average rate of return for Independent Class A companies (that is, those with annual revenues of $100,000 or more) amounted to about 4.8 per cent on plant investment.

On this basis the new taxes proposed by the Treasury would have cut this rate of return to 3.5 per cent if they had been in effect in 1941. "Junior securities" (stock) of telephone companies, it was observed, possessed little speculative possibility. Such shares are typically held by small investors throughout the country, who want a regular and secure income from a community enterprise.

Another notable characteristic of the Independent telephone business pointed out by Mr. Bozell is the additions for plant and equipment needed year after year. This perennial necessity has been augmented by the demand for special war construction, especially in the case of certain companies listed by the witness. Some Independent companies are being called upon almost every day to furnish immediate service to an additional camp, airport, or war industry. Mr. Bozell stated:

"The demand for additional service, both for official calls and for calls from men in service to their families at home, is tremendous. The peak load of long distance calls in the case of the Carolina Telephone & Telegraph Co., for example, is Sunday night, normally a dull period.

THREE NEW TELEPHONE PRIORITY RATING ORDERS APPROVED

Just as this issue went to press we were advised by long distance telephone Tuesday, April 21, from Francis X. Welch, TELEPHONY's special Washington correspondent, that three special telephone priority orders of the War Production Board's Communication Branch have been approved by WPB officials for formal release on Thursday, April 23. These orders include: (1) Preference rating order P-129, a new A-3 maintenance, repair and operating supply order; (2) an amendment to the present L-50 general conservation order, and (3) P-130 operating construction preference rating order giving an A-3 rating for materials for a limited amount of necessary new construction. Details will be published in next week's issue of TELEPHONY.

Even purely rural lines are being taxed as never before by calls necessitated by the emergency, such as calls relative to troop movements and air operations. Materials are hard to get, and the industry is operating in full cooperation with the War Production Board in its orders restricting growth to essential purposes as defined by the board, but it is still true that most companies will be called upon to spend substantial additional sums on capital outlays, often ranging up to 10 or 20 per cent, and sometimes more, of the existing investment.

"Thus two related problems confront nearly every Independent telephone company: how to raise the funds required for needed service; and how to offer a good enough and safe enough return on the new securities to obtain the money. If the company cannot pay common dividends, or if it is likely to default on its preferred dividends, the raising of new capital will be almost impossible.

"The proposed increases in corporation taxes, particularly the increase in the surtax to 31 per cent, are a crushing blow to corporations which cannot possibly increase their incomes to match the taxes. Large industrial corporations whose gross incomes have been greatly enlarged by a greater volume of business, whether in war materials or other goods, can meet the new imposts without too much difficulty. Smaller corporations, such as most of those for whom we speak, with level or declining incomes, will be very hard hit. Indeed, a few computations will show that the proposed tax system conforms to ability to pay only in reverse. The more corporate income increases (as was illustrated in many cases in 1941), the less burdensome the corporate taxes will prove to be on the owners of the corporation, its stockholders. The more stable income a corporation has, the less likely it is to be able to meet its interest and dividend requirements. A tax system that operates in this way demands revision."

The witness went on to point out that the proposed corporate taxes will hit hardest those corporations with the soundest financial structures. During the past decade the federal government, especially the SEC, has been trying to simplify complicated corporate structures, scale down overcapitalization, and replace bonds with stocks. A subsidiary of Mr. Bozell's own organization, Lexington (Ky.) Telephone Co., was reorganized some time ago so that almost half of its debt was replaced with stock.

Now, in the face of this program to strengthen the corporate structure, we have a proposed federal tax which would move in the other direction. In other words, as far as federal taxes are concerned, the corporation would be much better off if it still had all of its (bonded) debt outstanding. The witness stated on this point:

"It is not impossible for bankers to show a company that a good part of proposed financing can be paid off out of the saving in federal taxes, if bonds or notes are used instead of common or preferred stock. If normal tax and surtax rates aggregate 55 per cent, as the Treasury has proposed, a company must earn over $11 per share of preferred stock in order to meet a dividend rate of $5 per share. On the other hand, to meet a $5 interest coupon on debentures, the company need earn only a like amount. The higher the federal tax rates, the greater the encouragement to and even necessity for corporations to increase their debt, not their stock issues."

It would seem to be imperative that this discrimination in favor of unduly heavy debt should be corrected, so that Independent telephone companies, as well as other industries, will be in a better position to face the extremely trying period of post-war adjustment. After the war, a considerable amount of plant will have to be written off without the benefit of the five-year amortization provision allowed by the present federal tax law.

As an example of the injury which the proposed taxes would do to an Independent telephone company, the witness selected the Associated Telephone Co., Ltd., which operates in southern California. This company, which operates in a territory where the Army, Navy, and war industries are making extremely large demands on its services, would only have left (if the proposed Treasury tax had been enforced in 1941) $1,225,756, as against construction requirements of $2,650,000 — leaving a deficiency in cash from operations of $1,424,244.

How could this deficiency in cash be raised? Obviously, not through common stock with a hopeless dividend outlook. Obviously, not by more preferred shares when the outstanding preferred shares had barely earned dividends. Short-term notes could not be met out of earnings and even a first mortgage bond issue would be a very doubtful financial operation. If accomplished, it would increase the company's debt to a point endangering the solvency of the company.

Mr. Bozell did not confine his observation to criticism of the tax proposal. He made some constructive suggestions. He thought that there might be established some sort of ceiling on the total amount of the income of utility companies (subject to public regulation) which might be taken by federal taxes. In other words, this would provide that the income of such companies "should not be reduced by federal taxes below a fair return on their actual plant investment." As an alternative proposal, the witness suggested that dividends on preferred stock should be allowed as a deduction from corporate gross income (for purposes of corporation taxes) so as to place preferred stock on a footing with notes and bonds.

Again, as a means of encouraging corporations to pay dividends, Mr. Bozell suggested that corporations should have a credit against their net income (for purposes of corporate surtaxes) for all dividends distributed. Corporate income paid out in dividends would thus be subjected to two *normal* taxes (now 24 per cent): one paid by the corporation and one by the individual receiving the dividend. It would thereafter be subjected to one *surtax*—that paid by the individual receiving the dividend. This, it was said, will remove a tax discrimination against stockholders while still favoring the use of bonds and notes (since the company pays no tax on interest payments on such obligations).

The witness admitted that the removal of such discrimination would mean a loss of revenue to the Treasury but minimized the effect by pointing out that a greater amount of dividend distribution would result in more taxes paid by the recipient shareholder through individual income taxes.

Finally, Mr. Bozell recommended that Congress go back to its original practice of allowing the normal tax and the surtax to be deducted from corporate income before computing excess profits tax. At present it is the other way around. The excess profits tax is deducted in computing the normal tax. Justifying this suggestion, Mr. Bozell said that the "normal tax," as its name implies, means the amount of revenue which the government should obtain from all corporations alike. It should be paid out of income before considering excess profits tax, if any. The present practice, the witness thought, exaggerates the amount of the excess profits tax by basing it on a hypothetical rather than an actual net income.

The testimony of Mr. Agee involved a nuisance problem in connection with the collection of taxes on toll messages, which concerns every telephone company, large or small. That is the Treasury's present practice of taxing each individual toll message instead

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of taxing the total amount of monthly toll business charged against the individual subscriber. The difference in the two methods of collection is relatively small. But the accounting problem of computing a percentage tax on every toll call in excess of 25 cents amounts to a substantial and unnecessary increase in the average telephone company's operating expense.

Mr. Agee pointed out that his own organization in Lincoln, Neb., is collecting toll taxes amounting to approximately $198,700 a year. This is being done under the present system of computing taxes on each toll message. And this single accounting operation has required the Lincoln Telephone & Telegraph Co. to engage the services of several additional employes in its accounting department. Added time of commercial employes is needed each month to explain to thousands of subscribers the different tax computations applicable to each toll message under the present law. The witness continued:

"We state that the present law is unnecessarily cumbersome and complicated and in our opinion these objections should be removed in the revised law which the Ways and Means Committee will recommend.

"Fully mindful of the necessity of providing increased revenue, we nevertheless believe that a simplified tax should be adopted. The present excise tax on toll messages, so far as the experience of our company is concerned, amounts to about 12½ per cent of the total charges. The proposed excise taxes would amount to about 18 per cent of the toll charges. We think a simple tax of 10 to 15 per cent assessed against the total toll bill of each subscriber each month, would produce a substantial amount and the method of determining and collecting the tax would be far more sensible in our opinion than the one proposed by Mr. Morgenthau."

Mr. Agee also questioned the desirability of the Treasury's proposed tax on pension accruals. His argument followed lines similar to those taken by representatives of the Bell Telephone System (as reported in this department last week).

Finally, the witness attacked the proposed increase in corporate taxes as above criticized by Mr. Bozell. Speaking for his own organization, Mr. Agee stated:

"If Congress accepted Mr. Morgenthau's proposal and assessed combined normal and surtaxes of 55 per cent against our company, we would not be able to meet our preferred stock dividends in full and would have nothing to pay in the way of common stock dividends. The ability of the company to finance necessary war projects such as we are now being called upon to do, would be seriously hampered. To a company such as ours the suggestion is alarming. We see in it the possible demonstration of the old saying that the power to tax is the power to destroy.

"As stated in the beginning, we realize that the government must have money to successfully pursue the war. We want to do our full share but we believe that the revenue can be obtained through more reasonable channels than the oppressive taxation of public service corporations, particularly the telephone industry, which has no practical way to protect itself by increasing the price of its product.

"Industrial corporations or retail establishments might pass the tax along to the consumer. The telephone industry is unable to do this. We therefore plead for a different type of taxation which will permit such an industry as the telephone industry to live and continue to provide what we believe is an essential service in winning the war."

* * *

The opening sessions of the hearings on the Sanders bill (H.R. 5497) to split the Federal Communications Commission started off rather quietly on April 14. The hearings were conducted by Chairman Clarence F. Lea of the House Interstate and Foreign Commerce Committee and lasted through most of the week. They were recessed after the April 17 hearing until May 5.

Although committee members showed little interest during the formalities of the preliminary statements (only four members were in attendance at one time), there is every indication that these hearings will pick up momentum and general interest, especially when the committee gets around to examining the members of the FCC. Chairman Lea promised that FCC witnesses would be called some time around the middle of May.

The first witness to be heard by the committee was Herbert M. Bingham, Washington radio attorney and an official of the Federal Communications Bar Association. Recommendations of that group duplicated, in a general way, the provisions of the Sanders bill itself. This bill, as you may recall, would divide the FCC into two separate autonomous divisions—one would handle radio broadcasting matters and the other would handle commercial communications carrier matters, including telephone cases.

Mr. Bingham was followed by Judge E. O. Sykes, president of the Federal Communications Bar Association, and formerly a member of both the FCC and the old Federal Radio Commission. Sykes agreed for the most part with the recommendations previously outlined by Mr. Bingham. He made one important departure, however.

The FCBA, as well as the Sanders bill, would reduce the chairman of the FCC to a mere figurehead, having no duties except with respect to certain formal matters which would require the activity of the entire commission *en banc*. Judge Sykes made an alternative proposal. He recommended that the chairmanship should be rotated annually (as is done on the ICC and some other commissions). In this way each of the seven members of the FCC would serve at some other time or another as chairman of the full commission.

The tacit implication of Sykes' testimony seems to be that, since the Sanders bill is aimed chiefly at Chairman Fly, a more scientific remedy would be to separate Fly from the chairmanship diplomatically, instead of virtually separating the chairmanship from the commission.

The third witness for the committee was Neville Miller, president of the National Association of Broadcasters. Mr. Miller had three specific amendments which he wanted put into the Communications Act (chiefly dealing with radio broadcasting regulations):

(1) Congress should forbid the FCC from interfering with radio programs or business management (except, of course, to the extent which may be authorized by the DCB under emergency powers of Section 606); (2) that the FCC should be forbidden

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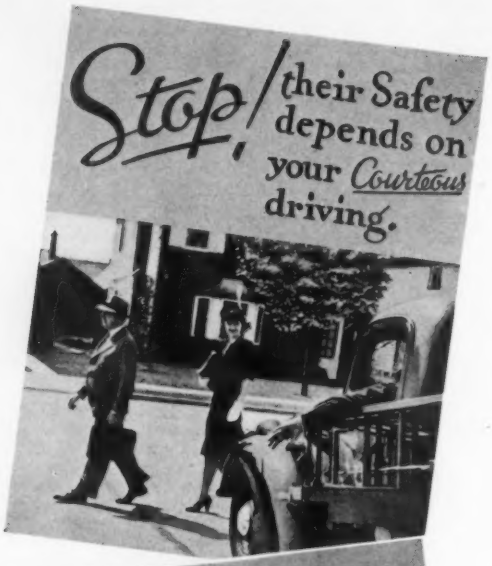

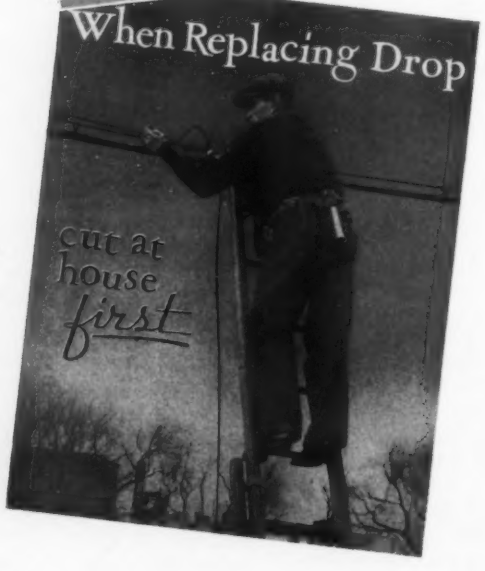

ANY ACCIDENT ID

Communication companies must not be hampered by loss of available manpower. They do not have time for accidents as every delay helps the enemy. Many ways suggested to train employe in safety. Mr. Caster formerly was plant superintendent of the Lincoln (Neb.) Telephone & Telegraph Co.

By MARK T. CASTER

TELEPHONE men do not have to be reminded that our dear old Uncle Sam has been forced by violence to put aside his accustomed pleasant expression and assume a warlike countenance. News analysts have certainly convinced us that the U.S.A. is engaged in the most heroic struggle in its history. . . .

We must not and we will not lose!

To win, we need every man-hour for production of food, useful materials and fighting equipment. Our communication organizations must not be hampered by loss of any available effort. We don't have time for any accidents! Every delay will help the enemy. . . .

My best guess is that every president, secretary and treasurer of every telephone company, together with every general manager, superintendent, wire chief, foreman, mechanic and helper — even the humble "grunt"—will not need such an admonition. The auditors, bookkeepers and operators will do their best to avoid giving any help or comfort to those villianous bands who would ravish our civilization and destroy our way of life.

How may we proceed to help Uncle Sam? *By avoiding accidents on the job, on the streets and highways, and in the home.* On the job accidents can be avoided by making the same thorough analysis of the safety requirements, as you would make of the requirements for materials or for the number of men.

No one would provide a crossarm for the repair of a handset, neither would he send the young lady with attractive personality from the business office to dig a hole for a pole. How often, however, have men been sent who were not well trained in how to avoid accidents, even though they may know something about other features of the task. Every industry pays for the mistakes of its supervisors and employes. It is

NIDS THE AXIS

cheaper to give proper instructions, in the proper manner.

MARK T. CASTER

It may be dangerous to promote a mechanic to the position of supervisor, just because he has been on the job for a long time. A successful supervisor must be a teacher. A good mechanic who cannot teach successfully will never be more than half successful as a supervisor. *Untrained people do have more accidents.*

Studies of accident frequency among telephone plant employes disclose that men working on the ground have from seven to ten times as many accidents per 1,000 man days as do men working on poles. The reason is that beginners always are first assigned tasks on the ground, and by the time they have acquired enough skill to justify using their services in work to be done on poles, they have at least acquired, from self observation or instruction, some respect for the hazards involved, as well as ideas regarding how to avoid them.

Training an employe is in some respects like training a dog. The teacher must know more than the dog; and besides, he must know how to demonstrate that knowledge in a way that is understandable to the dog. The teacher must not only make the instructions clear and understandable, but he must also conduct suitable investigations to be sure that each lesson has been learned. When he is sure the "vaccine has took" he has just made a good start.

Eternal vigilance is not only the price of liberty, it is also the price of safety. *The worst and the least excusable mistake a supervisor can make is to take things for granted.*

Stimulate interest in accident prevention by organizing safety committees, competitions in solving accident cases, first aid training and any other program which will develop and maintain employe interest. Safety committees should meet regularly, and at those meetings some actual accident cases in which all the details except the names involved and the location should be furnished for solution.

Accidents to linemen should generally be submitted to committees composed of linemen. The committee should be expected to place the responsibility for the accident, and should also advise what should have been done (or omitted) to avoid it.

For competition on accident prevention, describe the facts and details regarding accidents, but delete all reference to persons or locations in circulars or in a house organ (if one is published), and bring these statements to the attention of as many employes as possible. Offer suitable recognition or a prize to the employe who develops the best story regarding the cause of the accident and just how it might have been prevented.

First aid training is very important because it brings the interest of the student to accidents and the results of them. Proper first aid to the injured prevents greater damage in many cases. A simple break in a bone may become a compound fracture. A broken vertebra may cause fatal results. Bleeding may be fatal. A scratch may become infected and result in the loss of a limb or worse.

First aid training involves demonstrations, which are always among the best methods for giving instructions. Be sure that those giving the demonstration are instructed and trained to always place the subject where he can be plainly seen by every member of the class or audience. Then conduct the resuscitation or the application of bandages or splints so there is no one between the subject and the audience during any part of the performance.

Follow instructions in the Red Cross manual. Hand books on first aid are now being made available by the Office of Civilian Defense, in cooperation with the Red Cross. These may be secured in any required quantity on application to your nearest American Red Cross chapter.

Every male and female employe of a telephone company should be trained in first aid, and kept in training for the duration. . . .

Have a well-developed plan for accident prevention. Change it when necessary, but always have the best plan you know how to create.

In general the plan should include attention to all of these things:

Health of employes.
Tools used by them.
Clothing of employes.
Equipment used by them.
Driving practices, on and off the job.
Employes' home conditions.

A sizable order. Yes, but we have a sizable result depending on us. Why Health? Avoid this vicious circle:

Poor health causes worry.
Worry causes accidents.
Accidents help the Axis.
Axis successes cause more worry.

Encourage or require physical examinations, with attention to the teeth and other causes of focal infection.

Conduct frequent inspection and insist that every tool—whether furnished by the company or the employe—be in good safe condition, or *prevent its use.* Promptly junk any tool which is obsolete or which

(Please turn to page 38)

TREATING SOIL TO

Reduce Rod Resistance

Much has been said about chemical treatment of soil to reduce resistance of ground rods. The idea has been approved and condemned. Mr. Criley gives us some concrete facts gained from extended tests which will prove of value for future reference and possible use in connection with grounding problems.

THERE are numerous places in electrical systems where a connection to the earth is necessary, either to complete a circuit or to provide for the safety of equipment or employes. The type of ground connection varies with soil conditions, type of system, and importance of the ground connection. Typical grounding connections are water pipes, buried copper plates and driven ground rods of various types.

Telephone companies require many driven ground rods in their system, especially in the suburban and rural areas where water pipe grounds are not always easy to obtain. This article is devoted exclusively to various methods of obtaining a consistent and reasonably low value of ground rod resistance.

Theoretically, the resistance of a ground rod may be calculated by a formula, but this involves the resistivity of the surrounding soil. The soil resistivity is seldom, if ever, known and will vary with seasonal changes of moisture content, so the formula is of little practical value for operating conditions. It does, however, provide a basis for comparison with practical field results, and a general analysis of the formula will show the areas in which probable reduction in resistance may be obtained.

According to the formula, the rod resistance will vary directly with soil resistivity, inversely as length of rod and as the logarithm of the radius of the rod. Increasing the diameter of the rod increases the difficulty of driving it, as doubling the diameter increases by four the volume of earth to be displaced. In any but sandy soils this is a serious objection, and the general tendency is to use the smallest diameter rod which may be driven without bending.

Increasing the length of the rod has a greater effect on reduction of resistance than increasing the diameter. The soil resistivity decreases with depth below the surface, due to increased moisture content. Hence, practical tests of resistance *vs.* depth show the combined effects of increasing the rod length and reducing the resistivity. Sudden changes in type of soil may also be found, resulting in abrupt changes in resistance. If permanent moisture level can be found, the rod resistance will usually be low and will remain low.

The ohmic resistance of the rod itself is very low compared to that of the surrounding earth, hence the rod material has little effect on the total ground resistance. It has been claimed that the coating of the rod has an effect on the contact resistance between rod and earth, but the Bureau of Standards made carefully controlled tests and was unable to find any contact resistance. Even rusty rods did not materially increase the ground resistance. Paint or grease, however, has a serious effect and all rods must be clean when driven.

In many localities it is difficult to drive a rod to permanent moisture level, and when a low value of resistance is required, either two or more rods must be driven and connected in parallel, or the only other factor in the equation, soil resistivity, must be reduced. This may be accomplished by adding to the soil some chemical which is highly conductive in its water solution.

Many chemical salts could be used, but some will react unfavorably with the metal of the rod and produce corrosion. The cheapest and most readily obtainable is common rock salt. If this is placed in direct contact with rods, severe corrosion may result, as has been found on several occasions. But if the salt is buried away from the rod, the earth acts as a filter and reduces the corrosion, at the same time allowing the salt in solution to reduce the resistivity of the

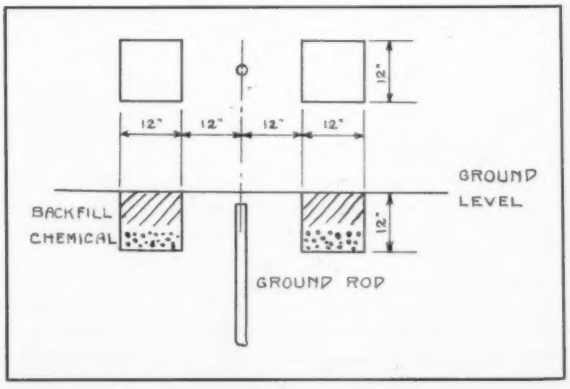

Fig. 1. Proposed method of soil treatment.

By **WALTER CRILEY**
Engineer, Rochester (N. Y.) Telephone Corp.

earth and thus reduce the ground rod resistance.

In 1939, tests were started on the reduction of ground rod resistance by chemical treatment of the soil, using copperclad and zinc-coated rods and rock salt, copper sulphate and zinc sulphate as the chemicals. Periodic measurements were taken until the fall of 1941.

The chemical was placed at least one foot away from the rod as shown in *Fig. 1*. Readings of the ground rod resistance were taken by a ground tester before the chemical was placed. After placing the chemical, several bucketfuls of water were added to partially dissolve the salts. Readings were taken every day for a week, and as the resistances tended to become stable, the time between readings was increased until they averaged about once in two weeks. No readings were taken during freezing weather. Several untreated rods were used, so that comparative results could be obtained in the same soil.

The test ground was the side yard of a central office, where there was light clay soil. The surface of the ground (to a depth of two or three feet) was backfill from the office excavation, with numerous small stones. The grading had been done more than 10 years ago, so that the soil was well packed for the entire depth.

measured resistance, taken just before the chemical was placed. The rapid drop in resistance during the first week is due to partial—but not complete—dissolving of the chemical. Only four bucketfuls of water were added to each hole, and this was not enough to completely dissolve the chemical and cause a deep penetration of the solution.

The chemically treated rods on both charts show a marked decrease in resistance during the second year. This is due to a complete dissolving of the chemical during the spring thaw, which also carried the chemical solution deeper into the soil. This action could have been hastened during the first year by adding several bucketfuls of water every day for a week or two, but that would not represent practical conditions if this treatment is to be used in the field.

Rod No. 1 is the standard five foot, one-half inch D. galvanized rod used by many telephone companies. During three years, the resistance had an extreme variation from 125 to 250 ohms. Each spring when the soil is wet the resistance is at its lowest value, but increases steadily during the summer and fall, the yearly increase going as high as 76 per cent. For numerous types of grounds this rod would have too wide a swing and too high a value to be dependable.

This variation of resistance, together with all other values obtained in this test, must not be considered characteristic of the particular rod but of the type of soil in which the test was made. At this location, a five-foot rod would be expected to show a yearly variation in resistance of 75 to 100 per cent, but this percentage would probably not hold good for other soils

TABLE I. SUMMARY OF GROUND ROD DATA

Rod No.	Length Ft.	Diam.	Type	Treatment	Initial Value	Measured Resistance — Ohms								
						1939			1940			1941		
						Min.	Max.	Per Cent Change	Min.	Max.	Per Cent Change	Min.	Max.	Per Cent Change
1	5	½"	Galv. Rod	None	138	125	220	76	142	240	69	158	250	58
2	8	½"	Copperclad	None	115	104	158	52	116	150	29	112	140	25
4	8	½"	Copperclad	20 lbs. Cop. Sulphate	118	66	113	71	53	72	36	54	80	48
5	8	½"	Copperclad	None	118	118	140	19	93	110	18	102	124	21
6	8	½"	Copperclad	10 lbs. Cop. Sulphate	140	110	170	54	76	125	64	104	130	125
7	8	½"	Copperclad	10 lbs. Rock Salt	78	39	64	64	21	30	43	35	47	34
8	8	½"	Copperclad	20 lbs. Rock Salt	141	33	78	136	20	28	40	22	30	36
3	8	¾"	Galv. Pipe	None	145	140	195	39	152	190	25	138	170	23
9	8	¾"	Galv. Pipe	10 lbs. Rock Salt	125	48	82	70	22	30	36	20	31	55
10	8	¾"	Galv. Pipe	10 lbs. Zinc Sulphate	98	61	97	59	64	80	25	68	85	25
11	6	¾"	Galv. Pipe	10 lbs. Zinc Sulphate	260	95	250	163	114	195	71	150	240	60

The three-year results are summarized in *Table 1*, and are detailed graphically in *Charts 1 and 2* on pages 28 and 32. *Table 1* is a summary rod number, length, diameter, type, chemical treatment, initial resistance (before chemical was added) and maximum and minimum yearly values of resistance. The percentage change is the increase in resistance for the year, expressed as a percentage of the minimum reading. In *Chart 1*, treated and untreated copperclad rods—except Rod No. 5—are plotted on the same sheet, together with the standard 5-foot galvanized rod. In *Chart 2*, the galvanized pipe rods, treated and untreated, are plotted.

On both charts the first point on each graph is the

in this area. Numerous five-foot ground rods throughout this area have been tested, the resistance of some being as low as 50 ohms in moist clay soil, with others well over 250 ohms in sandy or loamy soil.

Rod No. 2 is an eight-foot rod, untreated. The curve of resistance is generally the same as that of Rod No. 1, but somewhat lower in value. This should be expected, as the rod is three feet longer and should therefore be in more moist soil. The yearly variation, in per cent, is only about half that of Rod No. 1.

Rods No. 4 and No. 6 were treated with 20 and 10 pounds of copper sulphate respectively. Rod No. 6 had an initial resistance of 140 ohms, compared to 115 ohms for Rod No. 2 (untreated). During most of

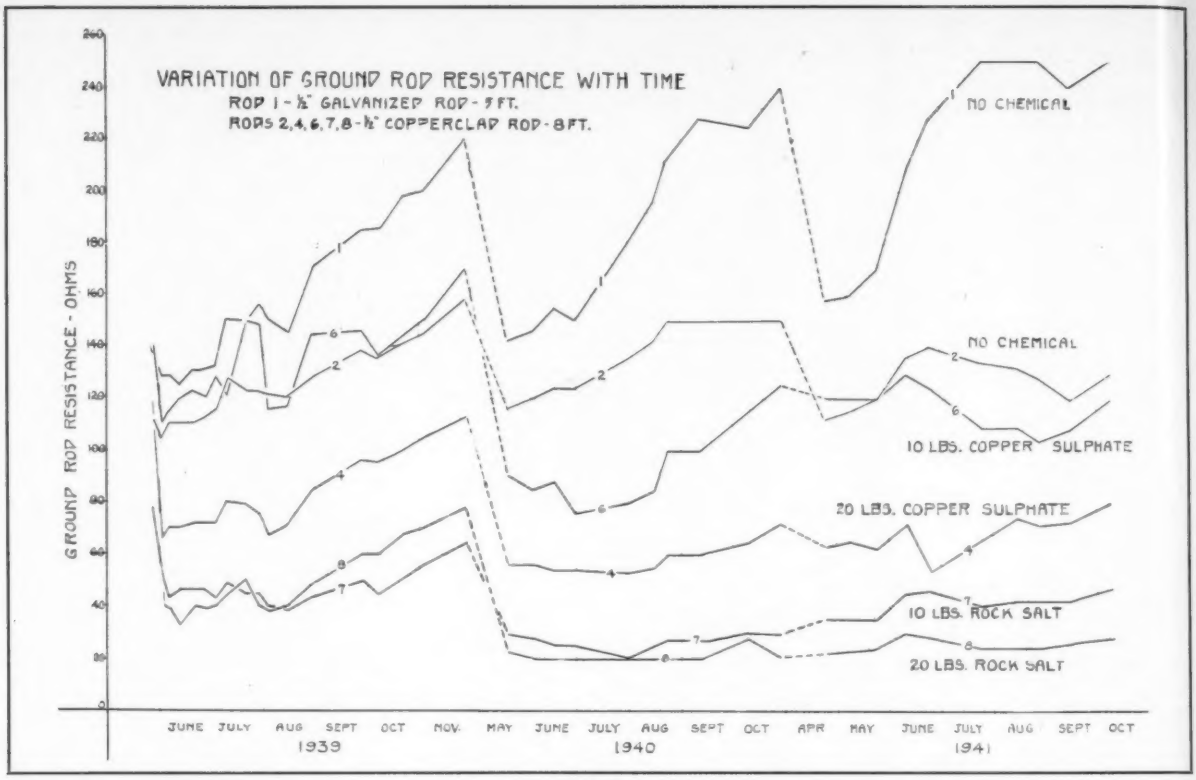
VARIATION OF GROUND ROD RESISTANCE WITH TIME
ROD 1 - ½" GALVANIZED ROD - 9 FT.
RODS 2,4,6,7,8 - ½" COPPERCLAD ROD - 8 FT.
GROUND ROD RESISTANCE - OHMS
NO CHEMICAL
NO CHEMICAL
10 LBS. COPPER SULPHATE
20 LBS. COPPER SULPHATE
10 LBS. ROCK SALT
20 LBS. ROCK SALT
JUNE JULY AUG SEPT OCT NOV. MAY JUNE JULY AUG SEPT OCT APR MAY JUNE JULY AUG SEPT OCT
1939
1940
1941

CHART 1.

the first year, Rod No. 6 was higher in value than untreated Rod No. 2, but was considerably lower during the early part of the second year when the solution penetrated to greater depths. This condition was not stable, the resistance rising steadily during the late summer and showing only a slight decrease during the third year. The use of only 10 pounds of copper sulphate would afford merely temporary relief and would not be justified.

Rod No. 4, however, shows a rather stable value during the second and third year, with variations of 36 per cent and 48 per cent respectively. The actual resistance at the end of the third year was 80 ohms, which would be satisfactory for numerous applications. An application of 20 pounds of copper sulphate should be good for three years, and for some types of installations might last for four years. This chemical may not be easy to obtain in some communities and might have to be disbursed from the company storeroom.

Rods No. 7 and No. 8 were treated with 10 and 20 pounds of rock salt respectively. During the first year, the resistance of both rods increased steadily, which was characteristic of all rods. Rod No. 7, with 10 pounds of salt, was lower than Rod No. 8 more than half of the time. The second year Rod No. 8 was consistently lower than Rod No. 7, but only by a few ohms. Rod No. 8 had a 40 per cent variation, but this represents an actual change of only eight ohms. Rod No. 7 had an actual variation of only nine ohms. For this year both rods are practically equal, and the 10-pound treatment was about as good as the 20-pound treatment.

During the third year the difference in the chemical treatment began to show its effect. Rod No. 8 (with 20 pounds of salt) increased its maximum value by only two ohms, bringing its highest resistance to only 30 ohms. This would meet the requirements of almost any application, except central office grounds. Rod No. 7, during the third year, was consistently 10 to 15 ohms higher than Rod No. 8, but could still be classed as a low resistance ground for many installations. Its maximum resistance during this year was 47 ohms, but this value is still well below that of Rod No. 4, treated with 20 pounds of copper sulphate.

It is believed that 20 pounds of rock salt in this type of soil would last for four years and probably five, before requiring a second application, and that a 10-pound treatment would last four years. This should keep the resistance under 60 ohms, which would be sufficiently low for many installations.

The three-quarter-inch galvanized pipe rods in *Chart 2*, show the same general results as the copperclad rods in *Chart 1*.

Rod No. 3, with no chemical added, has a three-year variation of 140 to 195 ohms. The percentage change during each year is not high, but the actual resistance is high for numerous uses.

Rod No. 11 struck an obstruction at six feet and could not be driven any deeper. The top bent and split under the driving and the top was finally sawed off. Several one-half-inch copperclad rods met obstructions during driving, but all were finally driven to their full depth without serious damage to the top of the rod. It is probable that the one-half-inch rods could bend enough to slide off the side of the stone, but the three-quarter-inch pipe, being more rigid, cannot do this easily.

Rod No. 11 was treated with 10 pounds of zinc sul-

(Please turn to page 32)

USE THEM Everywhere

. . . at docks, dry docks, firing ranges, warehouses, highway patrols, forestry and national park services, air fields, munitions and loading plants . . . in fact *everywhere* that intermittent telephone patrol service is required, the new Cook Pole Jacks provide compact, low cost stations for plugging in portable telephones.

Built to the rigid standards of the United States Army Signal Corps the No. 523-1 Pole Jack is equipped with the famous Cook Dual Gap Protector Unit that provides in addition to fusing both primary and secondary protection from lightning, power crosses and induced high potentials.

Unprotected types for either single or double plugs, built to the same high standards, are also available. Cook Pole Jacks are priced low through the adaptation and assembly of standard parts which are produced in large quantities for related products. The new Cook Pole Jacks are distributed by all telephone equipment manufacturers and supply houses.

COOK ELECTRIC COMPANY · 2700 SOUTHPORT AVENUE · CHICAGO

FRAME: The housing frame is hot dipped galvanized No. 16 gauge pressed steel and is equipped with a large non-corrosive ground stud. The detachable bracket for convenient mounting is also hot dip galvanized.

COVER: The non-corrosive cover is heavy welded zinc with drawn top. Tamper-proof hood seals can be furnished if desired.

JACKS: The new Cook Pole Jacks are furnished as standard with type JK-24 or JK-47 jack (U. S. Signal Corps designations) built to rigid U. S. Army Signal Corps specifications. Other jacks, as shown on Signal Corps drawing No. SC-D-553-G can be furnished when specified. An improved feature of the 523-1 Pole Jack is the spring cover for the jack opening which excludes dust, moisture and insects when the jack is not in use.

SIZE: The assembled unit is very compact, requiring only 25 cubic inches of space. It measures 6¼" x 2¼" x 1¾".

Specification

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Examples

OF THE "LITTLE THINGS" IN LEICH'S LINE OF MATERIALS

Cable splicer's supplies are typical of the hundreds of items of a specialized nature employed in telephone maintenance and repair. The Leich organization stands ready to supply you with all essential maintenance materials—as well as complete equipment and construction products for specific war jobs. Whatever your requirements, the Leich symbol is your assurance of service, quality and complete satisfaction.

LEICH SERVICE

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phate, but even with chemical added, had a very wide fluctuation of readings and a maximum resistance of 250 ohms. This rod had the same maximum value as the five-foot, one-half-inch galvanized rod, and supports the general theory that the length is more important than the diameter of a rod.

Rod No. 9 was treated with 10 pounds of rock salt and Rod No. 10 with 10 pounds of zinc sulphate. Both rods give fairly stable values of resistance, but Rod No. 10 is over twice the resistance of Rod No. 9, indicating the superiority of rock salt as a chemical for ground treatment. During the second and third years, Rod No. 10 varied from 64 to 85 ohms while Rod No. 9 varied from 22 to 31 ohms.

Rod No. 9, a three-quarter-inch galvanized pipe treated with 10 pounds of salt, was equal to Rod No. 8, a one-half-inch copperclad rod treated with 20 pounds of salt. With 20 pounds of salt, Rod No. 9 could easily have had a lower resistance than Rod No. 8, and this might be caused by the increased diameter. This possible advantage for the larger diameter rod must be balanced against the greater difficulty of driving it and the still greater difficulty of attaching a pig tail or connection to it with its usual bent and split top. Having driven both in similar soils, the writer greatly prefers a one-half-inch solid rod.

The possibility of corrosion, due to the chemical, has been stressed in several other articles. The writer has had proof in one or two cases that copper ground rods were destroyed in a year because the soil had been treated with salt. In each case the salt had been placed in *direct contact* with the rod.

In the test just completed, there was a minimum of one foot of earth between the rod and chemical. After the test was finished copperclad Rod No. 8 was pulled out of the ground for examination. This one was selected as it had been treated with 20 pounds of rock salt, and would be expected to show the greatest corrosion. No evidence of corrosion could be found, even with the aid of a magnifying glass. Over a long period of years, it is possible that corrosion might develop with maintained chemical treatment, but the three-year test does not indicate this possibility.

This territory includes several large areas of light sandy soil. Chemical applications here would be expected to produce quick, but not lasting, results. Consequently chemical treatment was not tested. This soil seemed to be ideal for testing sectional ground rods, in order to locate permanent moisture level for this area. Eight-foot sections of five-eighth-inch copperclad rods were used, Rod No. 1 consisting of two sections joined together, or a 16-foot rod, Rods No. 2 and No. 3 each consisting of three sections joined together, or 24-foot rods. At 12 feet, Rods No. 2 and No. 3 measured 250 ohms and Rod No. 1 measured 150 ohms; at 16 feet, Rods No. 2 and No. 3 measured 150 to 160 ohms and Rod No. 1 measured 90; and at 24 feet Rods No. 2 and No. 3 measured 35 and 25 ohms.

The required depth of rod is, of course, dependent on the desired final value of resistance, but in this location 16 feet would not appear to be deep enough for many applications. In this area, a 24-foot depth would be necessary for most of our requirements.

These rods were quite stable in readings, particularly Rods No. 2 and No. 3. Rod No. 1 (16 feet) varied from 78 to 95 ohms over a three-year period, but yearly variations did not exceed 10 ohms. One of the 24-foot rods varied from 25 to 30 ohms in three

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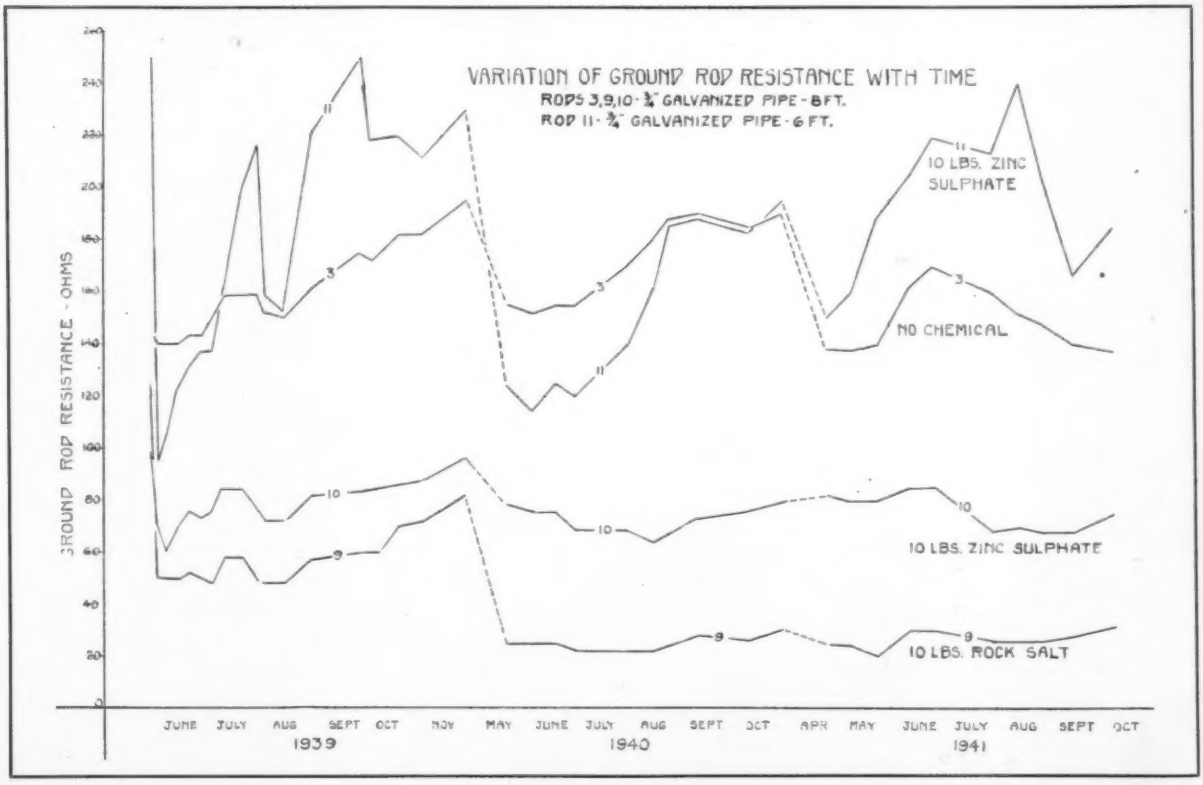
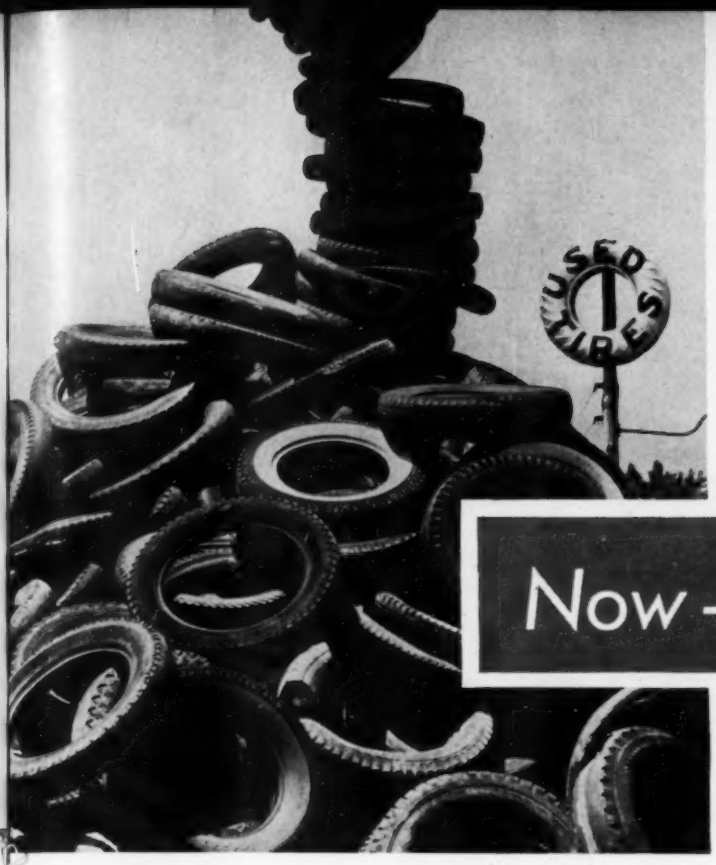

VARIATION OF GROUND ROD RESISTANCE WITH TIME
RODS 3,9,10 - ¾" GALVANIZED PIPE - 8 FT.
ROD 11 - ¾" GALVANIZED PIPE - 6 FT.
GROUND ROD RESISTANCE - OHMS
10 LBS. ZINC SULPHATE
NO CHEMICAL
10 LBS. ZINC SULPHATE
10 LBS. ROCK SALT
JUNE JULY AUG SEPT OCT NOV MAY JUNE JULY AUG SEPT OCT APR MAY JUNE JULY AUG SEPT OCT
1939
1940
1941

CHART 2.



© Ewing-Galloway

Now – About Tires

By FRED E. KUNKEL

All telephone companies should take immediate steps to see that drivers of their vehicles follow rules and suggestions for getting maximum life from tires. Conservation program makes it imperative to get greatest mileage.

ALTHOUGH the telephone industry is not on the prohibited list, nevertheless there is a necessity for conserving rubber as much as possible for defense purposes, until such time as synthetic rubber makes its appearance in volume production in the face of a threatened tire shortage. Hence, the question of tire conservation and getting the maximum mileage out of tires becomes of paramount importance to telephone companies.

Tire engineers know how to get the most out of tires but the average car owner has never worried much about the tire situation except trying to hold down costs. Today cost is out of the reckoning, and tire mileage is the only problem. It is a question of survival of the fittest tire through proper use and care to obtain only one result—MILEAGE—the greatest mileage possible.

Leaving out of consideration off-the-highway service where traction and rough roads are the first consideration, we find that having the *correct* type of tire for any given operation is of first importance. Other factors entering into longer tire wear include the nature of the loads and load distribution and speed. No tire is ever right for the job if the size is not right—a factor which is determined largely by the weight of the loads.

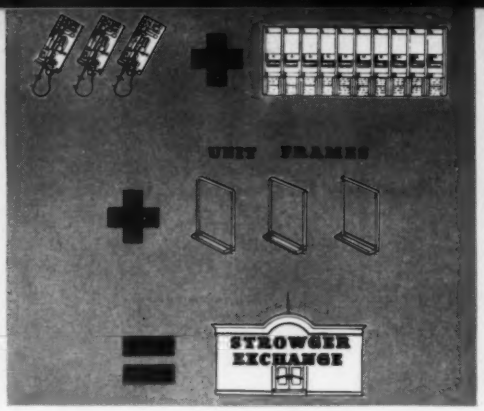
Heavier loads naturally require larger sized tires. Overloading causes a tire to develop excessive internal heat, which is one of the most common causes of premature failure. With better tires on the market, owners have carried heavier loads and with speedier trucks, transportation has been faster than ever before.

Today the question is one of watching the loads, making less speed on old tires as well as new, since heavy loads and high speeds generate terrific heat inside an ordinary tire. The average driver today is not yet conscious of the fact that he must reduce his speed, reduce his load and save on tire wear. He has never worried about that before and he is not inclined to worry much about it now, so that the first objective is to make him worry and to help carry the burden of the car owner or at least share the view that something drastic must be done to save rubber.

Uniform air pressure must be maintained and tires checked more frequently than heretofore. Air gives inside support to tires. Over-inflation and under-inflation are equally bad. There must be just the right inflation to minimize tire trouble and increase tire mileage, so that a tire will outlast all previous performance.

Hundreds of delivery truck tires are taken out of service every day, worn or blown out before their time, the majority of which would have delivered far more mileage if a few precautions had been

CHANGES EASILY MADE. Unit type switches can be quickly added or removed to other frames, or even to other exchanges, if desired.



ADDITIONS SIMPLE AND ECONOMICAL. To expand exchange capacity, merely add more frames and switches—no rewiring—no rebuilding.

REDUCES LOCAL OPERATING EXPENSE Strowger Automatic equipment carries all local traffic. Only information, toll and similar services require operating personnel.

LOW
equipm
Small

Features that

NOW USED TO SE

Users of Strowger equipment are finding that many features of design and operation which helped secure new business in the past are now helping maintain service standards during the difficulties of the present.

Take for instance, the quick response and accurate machine connections provided by Strowger Automatic operation. These "superlatives" of service helped many companies increase patronage and widen public demand during peacetime. Today, these same Strowger Automatic superlatives are proving invaluable in keeping service pitched to the fast, accurate pace demanded by national wartime activities.

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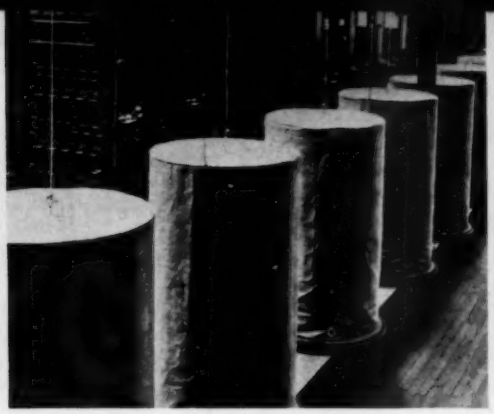
AUTOMATIC
ORIGINATORS AND DEVELOPERS OF STROWGER

MAKERS OF TELEPHONE, SIGNALING AND COMMUNICATION

Distributors
AMERICAN AUTOMATIC ELECTRIC SALES CO
Export Distributors: AUTOMATIC

LOW MAINTENANCE COST. Strowger equipment requires a minimum of attention. Small exchanges often remain untouched for weeks at a time.



LONG LIFE. This equipment was installed at Richmond, Indiana, in 1907. It was still operating satisfactorily when replaced with modern apparatus of similar make in 1939.

HIGH SERVICE STANDARDS. Telephone users in localities where Strowger equipment is in use state that service is faster, more accurate and better in voice transmission.

Promoted Revenue

SAFEGUARD SERVICE!

Again, Strowger "small unit" flexibility enabled this equipment to provide a multiplicity of services and economically meet specific local traffic conditions by various groupings of standard switches. Now that new equipment is difficult to obtain, this same flexibility is making it possible for companies to make optimum use of existing plant. This is accomplished by shifting switches from one shelf to another, or even from one exchange to another, to more effectively serve changing traffic demands.

Thus, benefits of design and operation which previously helped to obtain new users, now aids in retaining them by keeping service standards at desirably high levels.

ELECTRIC

MACHINE SWITCHING AUTOMATIC DIAL SYSTEMS

TUS—ELECTRICAL ENGINEERS, DESIGNERS AND CONSULTANTS

Possessions

033 W. Van Buren Street, Chicago, U.S.A.

SALES COMPANY, LIMITED

taken, or if an analysis of the operation had been made and corrective action taken.

Over-loading is directly or indirectly the cause of a large percentage of premature truck tire failures. Normal flexing for which tires are designed will go on almost indefinitely, without causing appreciable damage to tire cords. But over-loading causes over-flexing, creates heat which weakens the cords and causes tires to fail before full tread mileage is obtained.

Over-loading also results in rapid tread wear because it increases the load on each square inch of tread in contact with the road. Uneven wear also results because the tread is distorted and cannot move naturally against the road. Over-loading also causes blow-outs.

Anyone unfamiliar with the scientific angle of loads should study factors or call in a tire engineer, or a local tire representative who can scientifically determine the proper loads.

While many have been familiar with the question of proper inflation no serious attempt was ever made to positively guarantee proper inflation. It is taken for granted as routine. In most telephone companies tires are checked once a week. In very few has the system of tire inflation checking been carried on daily before the truck or automobile leaves the garage.

Yet either too much or too little air decreases tire mileage. Over-inflation reduces deflection and tread contact area. It increases tension and strain on the cords so that when an object is struck (like a hump in the highway or rough roads, or holes in the road caused by weather erosion), the cord body is bruised on the inside and bruised much easier than when the proper air pressure is maintained.

Since drivers have been accustomed to make any kind of road at the same speeds it becomes increasingly necessary to make them slow down for all road hazards of this type, for each bump in the road will cause fabric wear. And multiplying the hundreds of small humps constantly encountered even in city driving, you have the answer to a worn-out tire.

Over-inflation to obtain greater carrying capacity results in severe carcass strain. Too large a percentage of the tire strength is used to hold in the air pressure, leaving too little strength to transmit driving and braking forces, resist bruising, and so on.

Increasing air pressure reduces the amount of tread contacting the road, causes the wear to take place over a smaller area in the center of the tread, resulting in faster tread wear. It also puts a tension on tread rubber, and rubber under tension wears faster, cuts easier, and has a greater tendency to crack.

Over-inflation also reduces skid resistance—a well known factor—but it also causes harder riding for engine and body, and increased upkeep of equipment, more bouncing and spinning, causing faster tread wear and loss of traction, plus body and engine wear and tear.

Over-inflation may be the result of putting in too much air pressure when the tires are cool, before they start on a haul with a load, either purposely or because of an inaccurate air gauge, or building up of air pressure in service.

A certain amount of air pressure built up in service is normal, and should never be reduced by "bleeding." To do so does not reduce temperature but causes a tire again to flex as it did when cool and cancels the value of compensating natural build-up which has already taken place. Bleeding results in more heat which, added to the temperature already present, is likely to cause premature tire failure through heat blow-out.

Under-inflation affects tire life in the same way as overload. It increases the flexing in the tire and results in excessive internal heat and early failure. Fast, uneven tread wear is the result of under-inflation caused by scuffing and wiping of the edges of the tread.

Heretofore it was the rule to inflate tires when cool at least once a week or two times a week, seldom three. But daily check and proper inflation is recommended today no matter what the labor cost, and many car owners are having the drivers themselves make the daily check. And, of course, the gauge must be accurate. It should be checked periodically against a master gauge of a tire dealer or distributor.

Defective or worn-out valve cores should be replaced as rapidly as discovered, and every effort made to discover them by careful checking. Caps should be used at all times on all valves, because a valve core is a delicate mechanism and a leak may be caused by minute pieces of dirt, oil or grease. The valve cap will prevent leakage through the valve. This saves much in tire wear.

Practical rules for longer tire life include:

(1) Using recommended size and type rims. Rims that are too small reduce tire carrying capacity and rim flanges will not properly support tires, causing excessive flexing.

(2) Never overload tires. If loads exceed maximum recommended, the only answer is to change to tires of larger capacity. The maximum carrying capacity cannot be increased by over-inflation.

(3) Check and inflate tires daily, if necessary, to the recommended pressure, before the truck leaves the garage. Three-fourths of all tire troubles are due to improper inflation.

(4) Investigate sudden drops in air pressure. Check valve cores, check for inside cuts and slight punctures; remove tube and check with pressure under water.

(5) When pressure has risen above normal in a hot tire do not bleed air to restore initial pressure.

(6) See that dual tires are properly mated.

(7) Tires on trucks operating empty or with light loads may be inflated to somewhat less than recommended, if speeds are not excessive. But first be sure of the man who does the driving.

(8) Never use a boot or blow-out patch in a good tire except in an emergency. Many tires that could be successfully repaired if taken out of service in time are ruined by boots.

(9) Always use a new tube in a new casing so long as practicable. It is the tube that holds the air which carries the load. The casing protects the tube.

(10) Repair or replace broken or bent rims or lock rings.

(11) Never let the tube valve touch a brake drum. It carries heat directly to the tube.

(12) Be certain that proper size flap is used for the tire and rim size being used. Never use an old or cracked flap.

(13) On light trucks with semi-drop center rims, do not try to mount or dismount the tires without removing the side or lock ring. It injures the tire beads.

(14) Never fasten chains on wheels too tightly. With reasonably loose chains you can get longer tire wear and greater traction as well.

(15) Do not let gasoline or oil come in contact with tires and tubes.

(16) Make sure your wheels are always in alignment to avoid uneven and rapid tire wear.

(17) Have drivers avoid jerky starts and sudden stops —they grind valuable rubber off tire treads. Drivers should be checked on this immediately.

(18) Drivers should be penalized for scraping tires against curbs.

(19) Caution drivers to slow down for curves and street corners.

The present emergency situation calls for drastic measures never undertaken before and for correcting bad driving habits picked up through bad practice in days of plenty.

This caution not only applies to tires, but to such items as brakes, clutch, rear end and other items which will be more and more difficult to procure for replacement until the present emergency straightens out and production gets back into a settled groove.

V V

Approved Maintenance Practices

(Concluded from page 20)

because of small ducts. Fibre or cement-asbestos conduit designed to be buried directly in the earth without concrete envelope has a long life and provides considerable mechanical protection. Fibre of cement-asbestos conduit placed on a concrete base and each tier covered with concrete as the cross section is built up, with a four-inch concrete top protective cover, provides maximum protection against mechanical injury. The presence of buried concrete is also a warning to workmen excavating in the vicinity of conduit runs and usually results in an investigation before breaking through into the ducts and cables.

When it is necessary to construct curves in the conduit run, this may be accomplished in the manner indicated in *Fig. 3*. Three-foot rod sections may be easily pushed through ducts laid in this manner. Cable may also be pulled into the ducts without difficulty.

Fig. 4. Two 90-degree radius fibre ducts as they would be placed when the ditch is some distance from the pole line.

Fibre conduit is often considered desirable for lateral runs when the main duct structure is made up of clay or fibre. The lateral conduit may be placed within the concrete envelope or at the side. When this method is used, at least two right-angle turns are required for each lateral. This arrangement is explained in *Fig. 4* where two 90-degree radius fibre bends are being used to extend the duct to the pole.

To place a fish wire in lateral ducts of this nature, a length of approximately 15 feet of No. 8 steel wire is attached to the jointed duct rods and pushed through the duct starting from the manhole. When the length of wire reaches the bends it will follow around them and appear at the end of the duct at the base of the pole. A pull wire may then be drawn into the ducts by attaching to the steel fish wire and drawing the rods and wire back to the manhole.

(Another installment soon)

V V

Peoples Telephone Corporation Lists 832 Net Gain

During 1941 the Peoples Telephone Corp., Butler, Pa., had a net gain of 832 telephones compared with 933 gained in 1940. Three hundred and nine of the stations gained in 1940 were purchased stations, so that the expansion of business caused a gain of but 624 stations in that year. On December 31, 1941, there were 10,869 telephones in the corporation's system as compared to 10,037 stations on the last day of 1940.

Local service revenues increased $35,366.67 to $341,-854.58 in 1941. Toll service revenues increased $17,728.93 to $83,257.44. Operating expenses increased $25,791.41 to $269,692.52 while operating taxes increased $25,490.68 to $71,999.83.

Net additions to plant in the amount of $90,521.91 during the year brought the plant in service on December 31, 1941, to $2,099,431.54. Much of the additional plant was required because of increase of business by firms engaged in the manufacture of war materials or by other activities associated with the defense programs.

V V

Evarts, Ky., Exchange Destroyed by Fire

Shortly after the Evarts-Harlan Telephone Co., Evarts, Ky., owned and managed by Cecil Goff, installed new common battery service in its exchange, a fire destroyed all the new equipment.

Mr. Goff, an enthusiastic member of the United States Independent Telephone Association, started the telephone system at Evarts in 1921 and is to be commended for the steady progress accomplished ever since. He is also a recognized amateur radio operator.

In addition to operating a telephone system, Mr. Goff finds time to engage in such activities as commander of the home defense guard, Office of Civilian Defense; district chief air raid warden, Civilian Defense Council; chief communications officer and defense warden of Kentucky Civil Defense Commission; chairman for collection of scrap material for Harlan county; official of the American Legion radio station for Kentucky, Station W9CEK, Evarts.

Any Accident Aids the Axis

(Concluded from page 25)

cannot be made entirely safe. You may find this one of the toughest assignments, because men love their old tools, as we all love an old comfortable pair of shoes, and hate to discard them.

There is another good reason why old broken or obsolete tools or equipment should be promptly disposed of as junk; not by throwing them under the stairs, or in the scrap heap, but by starting them on their way to the mill where the good metal they contain can be remanufactured into some article of use in this emergency.

The mills need this material. You may be having some trouble securing new tools, but you will have more if the factories do not receive the material, which can be derived from scrap buried in a refuse pile somewhere on your premises. *Start all waste material to the mill!* Some of us cannot get into the army or marines; but we can all "Get in the Scrap." Remember "Bolts Make Bullets." . . .

Proper clothing is also important. Each person in industry should wear clothing suitable for the task as well as for the weather conditions to which he might be exposed by a sudden change of temperature or the breakdown of a vehicle at some isolated place, when long exposure would be extremely dangerous if he were not provided with enough proper clothing to protect him until he can be rescued.

Whenever special equipment is used, its design and condition for the service involved is an important consideration. Also no employe should ever be entrusted to operate such equipment, until it has been proven he thoroughly understands how to operate it without hazard to himself, his fellow employes or the public. . . .

No employe should be permitted to operate any motor vehicle unless he understands the traffic laws and ordinances and is willing to observe them. Also, make certain that he understands how to handle the vehicle he is to drive and is thoroughly instructed in how to operate it safely, and that he is to decline to operate it whenever it is not in proper condition. He must also be instructed in what speeds are safe under the varying conditions which he may encounter, and that he is never to drive faster than is safe. Then drop in behind him at times to be sure that he is observing the instructions which he has received.

Teach all employes that getting out of the left door of a car which is parked parallel with the curb is just as dangerous as darting into the street from behind parked cars. In other words, the right side is always the "right" side; while the left side is the "sui-side."

The driving habits of employes, off the job, is the concern of the employer during this emergency, as never before. . . . If an employe drives on the job, or off the job, while under the influence of intoxicating liquor, you cannot afford to retain him as an employe. (Of course, a good example must be set for him). . . .

An employe's home conditions are also important to his safety. A Pennsylvania steel company, whose employes were thoroughly trained in how to avoid accidents on the job, under a well-developed safety plan, operated for 900,000 man days without a fatal accident in any of its mills. During that period, however, 13 of its employes lost their lives as the result of home accidents. . . .

Why has all this safety vigilance been urged? The records of the National Safety Council, regarding causes for permanent disabilities and deaths among employes of public utilities, show that 23 per cent are caused by "unnecessary exposure to danger"; 12 per cent are due to "unsafe and improper use of equipment," and 19 per cent due to non-use of protective equipment furnished.

Under personal causes, improper attitude was responsible for 54 per cent and lack of knowledge or skill caused 24 per cent. Under "improper attitude" we might mention one of the more prevalent types of public enemy: The person who violates the traffic laws and then boasts about it. He deserves *less* respect from society than the shop-lifter or the chicken thief because neither of these expose others to injury or death. During this emergency he is going to do more to help the Axis powers than all the careless persons combined, because of the example he sets before our youth and those who retain juvenile minds after they have reached the age of discretion.

Of all industries reporting permanent disabilities and deaths, only one, the machinery group, exceeded the public utilities in either unsafe acts or personal causes for those accidents. . . .

Just as the old darky said, "Taint no matter how high you builds De-fense, us better look atter der bottom rail. Dats wha de debil lets in de hawg."

It's under that bottom rail that the *Accident Fifth Column* will attack our structure and our way of life, through its effect on our available man-hours, all of which are needed.

Every loss of time resulting from accidents is an aid to the Axis!

[EDITOR'S NOTE: *The foregoing is the major portion of an address given by Mr. Caster before the recent Minnesota telephone convention.*]

V V

Modern Construction Methods

(Continued from page 18)

hand or by air operated tools. The tamping boom is quickly movable which permits tamping the trench with the machine straddling it or as much as three and one-half feet from either side. It is common practice to replace concrete base or pavement immediately after a trench has been tamped with this machine.

When rock is encountered during the digging of holes for poles or trench for cable, considerable power is usually required to cut through or break it. One very good method whereby this may be accomplished is by the use of a portable gasoline hammer drill. This drill comes in several different sizes the largest of which weighs about 100 pounds. This tool may be operated and carried by one man and is simple in conconstruction because of the fact that it has neither crankshaft, connecting rods, flywheel, or bearings.

This tool is started by pushing down on the starting

plunger at the top of the cylinder. The free floating steel piston acts as the hammer. In the up-travel of the piston, a vacuum is created which causes a suction in the manifold. This action lifts the mixture valve in the body of the carburetor and allows a charge of gasoline and air to enter the lower compression chamber. In the down-travel, the compressed gas in the compression chamber enters the combustion chamber through the passage holes in the piston.

The explosion drives the piston downward and the system continues with the operation of the hammer. The piston in its up-travel compresses the gas in the combustion chamber and the piston cam operates the circuit breaker to complete the ignition circuit which produces the spark in the spark plug for the explosion.

This machine may be used for various types of drilling by attaching different tools commonly used in air hammers. Other special tools may be attached for the driving of ground rods, and sheathing for manhole construction. A tamper may also be attached which proves extremely useful for tamping during backfilling of trench in confined spaces.

Lately we have not heard much about the installation of buried wire or cable by the plowing-in method although present indications are that we may soon see a revival of this method. This prediction is based on the theory that many of the former objectionable features of this method have recently been overcome.

One type of wire-laying plow will bury wire to a depth of 20 inches. This tool weighs 1,500 pounds and requires 25 to 35 horsepower to pull through average soil. A popular type cable plow is capable of installing cable up to one and three-quarters inches in diameter to a depth of 24 inches. This model weighs 1,730 pounds and requires from 25 to 40 horsepower to haul it.

A walking type plow weighing only 800 pounds will lay wire or cable up to one and one-quarter inches in diameter to a depth from 18 to 20 inches. This plow may be pulled by a tractor although many telephone companies prefer to haul it by the winch of their construction truck.

When underground conduit construction is used, sectional steel manhole forms and ready mixed concrete makes this usually difficult task comparatively simple. Ready mixed concrete may cost slightly more but this extra cost is counterbalanced by the savings realized by avoiding the mixing of comparatively small quantities at various locations in the street. Also there is not as much waste of ready-mixed concrete as when an attempt is made to mix on the job.

The machines and methods mentioned in this article have all been tried and found satisfactory in every way. No one need have the slightest fear of taking advantage of these labor-savers by purchase of the equipment or handling by contract with a concern properly equipped. The Army has been mechanized and there seems to be no good reason why the telephone industry should not do likewise.

V V

Heads Oil Company

OTTO FUERST, general manager of the Platte Valley Telephone Co., Scottsbluff, Neb. and the newly-elected president of the Nebraska Telephone Association, has prospects of becoming an oil magnate. He is president of and chief stockholder in the Fuerst Oil Development Co., and a well being sunk has tapped a large flow of gas, which indicates oil will follow.

Treating Soil to Reduce Hot Resistance

(Concluded from page 32)

years and the other one from 27 to 30 ohms. For consistent values, these could hardly be improved.

A low and stable value of resistance should be expected in any type of soil, if long rods could be driven. In many locations this would be impractical, and nearly as good results should be obtained by using a shorter rod and treating the soil with chemical. Copper or zinc sulphate will produce good results, but an equal amount of rock salt will produce as good, and frequently, better results and at less cost.

Salt should be easily obtainable in almost any locality, while sulphates might have to be a stock item. A minimum of 20 pounds of any chemical should be used with an eight-foot rod and probably 40 to 50 pounds with a five-foot rod. Such an application should be good for three to five years. The corrosive effects of the chemical appear to be negligible, provided it is placed at least one foot away from the rod.

These rods did not carry current at any time during the test, which of course is not a perfect reproduction of actual conditions. But since many telephone ground rods carry current only intermittently, the test should closely approximate working conditions.

These tests were not intended to fix the maximum or minimum values of resistance for ground rods as these will vary with use and with companies. They were intended only to determine the relative merits of a few common chemicals in reducing ground rod resistance, the approximate time a treatment would last, and the effect on the life of the rod, if any.

Based on the results of our limited tests, it is believed that an application of 20 pounds of rock salt to an eight-foot rod should reduce the resistance to less than 30 per cent of the untreated value and that one treatment should be good for three to five years, with no apparent shortening of the life of the rod.

V V

Fort Leonard Woods, Mo., Served by United Company

According to Alden L. Hart, president of United Utilities, Inc., Abilene, Kas., a company which operates 13 utility concerns in eight states, the United Telephone Co. of Missouri, a subsidiary, extended additional toll line facilities to Fort Leonard Woods, Mo., and acquired a local exchange in the vicinity to serve the requirements of the civilian population.

During the first two months of this year several large army camps have been authorized by the government for location, either in or contiguous to the areas served by United Utilities.

V V

Joint Oregon-Washington Convention

The Oregon Independent Telephone Association and the Washington Independent Telephone Association will hold a joint convention at the Portland Hotel, Portland, Ore., on June 12 and 13, it has been announced.

WALTER A. SPECK, of the Gorman (Tex.) Telephone Co., writes with reference to static drainage coils: "We operate a number of rural metallic lines and phantom metallic circuits, and being located in the dust bowl, our static conditions were extremely bad. However, by using two radio resistors of 25,000 ohms on each line connected from each side to ground at a subscriber's protector, the static was drained completely.

"We experienced no trouble whatsoever in the normal operation of the line. In the case of phantom circuits, it is necessary, of course, to drain the physical circuits of the phantom group. When phantom coils were mounted on poles, the resistors were installed on the same protectors associated with the coils. The resistors were installed on the instrument side of the protector so as to have fuse protection between them and the line."

Thanks, Mr. Speck, for a report on how you solved a difficult problem. We would be glad to hear from others having similar experiences.

* * *

We hear of numerous methods these days whereby underground conduit sections are rodded with dispatch and ease. The newest method coming to our attention is to make use of compressed air to blow a small parachute attached to a string through the conduit. It is claimed that only 33 seconds to 1½ minutes are required to place a line through a conduit section 500 to 700 feet in length. Undoubtedly, this is a real labor saver.

* * *

A new type of gin pole arrangement is being tested on line construction trucks with a view to improving the usual pole derrick. The advantage claimed for this arrangement is that the shaft supporting brackets are inclined inward toward the center line of the body which permits a greater lifting power. It is also claimed that this gin pole arrangement may be used to set poles up to 90 feet in length.

* * *

It is well to pay special attention these days to the care of lineman's belts and safety straps as leather unquestionably will be a critical item at some time in the future. Never make use of gasoline on leather, but clean it with a neutral soap such as castile; wipe dry and then wash with a good grade of saddle soap. The leather should be carefully oiled about twice each year with neatsfoot or other suitable animal or vegetable oil. Never use mineral oil such as vaseline or machine oil for this purpose. Even when neatsfoot oil is used, do not overdo it as the belt and safety strap should never feel or look greasy.

* * *

There is little doubt that Ken Gillette of Cook Electric Co. is the happiest man in the Nation's Capital, if not in the entire world. The cause of said elation is due to the arrival of Kenneth C. Gillette Jr., weight 6 pounds, no baggage, at Doctors Hospital, Washington, D. C., on April 12.

* * *

I enjoyed a pleasant visit with C. E. Jones, chief engineer of the Pennsylvania Telephone Corp., Erie, Pa., who is now on duty in Washington, D. C., as special adviser to the WPB on telephone priority matters.

* * *

James F. Carroll, president, Indiana Bell Telephone Co., paid us a call while in Washington this week visiting his son, Lt. H. A. Carroll, who is on duty in the plant division, Office of the Chief Signal Officer, Washington, D. C.

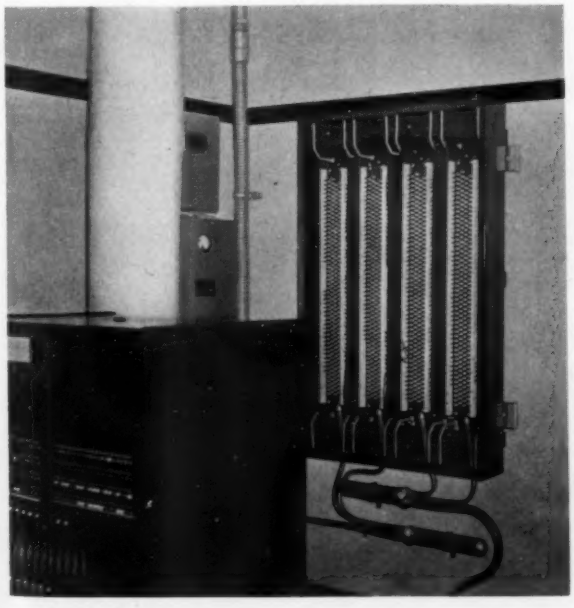
IMPROVISED POWER TAKE-UP REEL: The accompanying photograph indicates how a power take-up reel may be improvised by utilizing an ordinary cable reel trailer. This is accomplished by bolting an auto wheel on the side of an ordinary wooden cable reel. The take-up reel is then driven by a 1¼-inch rope belt which takes several turns around the auto wheel rim and the nigger head on the winch of the line truck. This arrangement provides ample power and slippage is reduced to a minimum.

Power take-up reels may be used to advantage on all telephone work, but prove especially useful when long lengths of wire or messenger strand must be recovered

from sections of line which cannot be driven over with a truck. In such locations, the power take-up reel may be used to pull the wire out in the open and coil it up at the same time. These reels may also be used to advantage for pulling-in aerial cable.

* * *

WALL TYPE MAIN FRAME: Thanks are extended Wesley Cole, Signal Corps engineer, Omaha, Neb., for this kink. Numerous types of wall mounting main frames are available and they have proved entirely successful over a period of many years. The accompanying photograph indicates the manner in which a house terminal was used in lieu of a main frame on a PBX where space was limited. This switchboard was located inside a large building where protection was not required; however, a protected house terminal could have been used with equal success had protection been necessary. This is a very neat installation.



In the Nation's Capital

(Concluded from page 23)

to impose penalities which they have no express authority under the present law to impose—such as compelling the owner of two radio stations in the same city to get rid of one of them before applying for authority to increase broadcasting power of the other; (3) the appellate courts should be allowed to give advisory or "declaratory" opinions on advisory or declaratory rulings to be issued by the FCC.

This third suggestion was made to avoid hardship and uncertainty within the radio industry in trying to guess in advance just what position the FCC would take on certain major questions of policy. Both Judge Sykes and Mr. Miller insisted that the FCC has no jurisdiction whatever over newspaper ownership of stations. Both emphasized the importance of such major policy decisions which they believed should be made exclusively by Congress and, in the first instance at least, by the FCC acting on its own discretion.

These hearings on the Sanders bill are still, apparently, separate from the Cox resolution (H. Res. 426) for a special five-man committee to investigate the FCC. Representative Cox still hopes to have the House Rules Committee recommend a special probe. But the administration pressure seems to be veering in the direction of telescoping both the Cox resolution and the Sanders bill into one hearing before the House Interstate and Foreign Commerce Committee. Apparently the administration thinks that if there has to be an investigation of the FCC, it would be more safely handled if conducted before the mild-mannered Chairman Clarence F. Lea of California than under the fiery FCC critic from Georgia—Representative Cox.

V V

USITA Announces Time Change for Conference

The program for the Executives' Spring Conference of the United States Independent Telephone Association has undergone an important change. In order to allow more time for the discussion of the new telephone priority orders, which were signed by the War Production Board's Communications Branch on April 20, the meeting will open at 10:00 A. M. on Tuesday, April 28, instead of at 1:30 P.M. as previously announced. The morning session will be opened with the report by R. A. Phillips as president of the association and as chairman of the National Defense Committee. This is to be followed by a report on "Washington Affairs" by Vice-President Clyde S. Bailey. The remainder of the forenoon session will be devoted to a discussion of the problems presented by the reports.

The rest of the program is unchanged from that announced in TELEPHONY, April 18, p. 26.

V V

Hershey (Neb.) Exchange Sold to Paxton Man

The Hershey (Neb.) Telephone Co. recently changed hands when Elmer Chrisp of Paxton purchased it from Glen Fletcher, former owner. Mr. Chrisp, who also owns the telephone exchange at Paxton, stated that he is going to rebuild the lines and generally improve the service. County Treasurer Earl Brownfield said that the consideration of the sale was approximately $4,000.

INFLUENCE OF WAR

Considered by Nebraskans

WAR AND ITS EFFECT on the telephone industry was the prevailing theme of the Nebraska Telephone Association at its 43rd annual convention held April 14 and 15 in Omaha. Now as never before, with telephone problems multiplying each day, it is important that telephone people attend the conventions where they can talk over their mutual and individual problems and that they subscribe to their trade publications in order to keep posted on the rapidly changing conditions. These thoughts were expressed by Louis Pitcher, Chicago, executive vice president of the United States Independent Telephone Association, in his address to the convention.

The Omaha convention was attended by more than 200 members of the Nebraska association, representing more than 100 telephone companies, and was one of the most patriotic and enthusiastic meetings held in some years.

Otto Fuerst, Scottsbluff, was elected president for the ensuing year, F. C. Thrasher, Red Cloud, vice president, and George Kloidy was re-elected secretary-treasurer. Directors re-elected for three years were H. L. Frentress, Omaha, H. F. McCulla, Lincoln, and C. A. Patterson, Arapahoe.

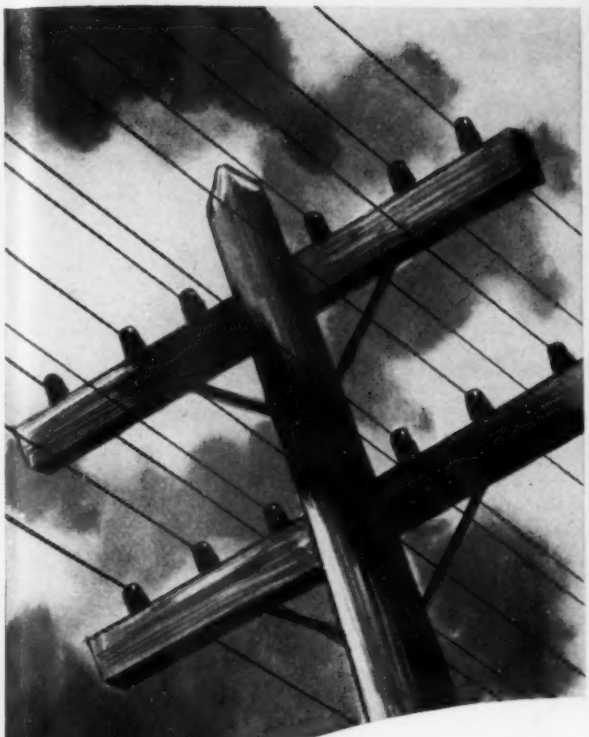
Speaking of the telephone's place in modern war-

OTTO FUERST, Scottsbluff, newly-elected president of the Nebraska Telephone Association, was making a telephone call when the cameraman came along at the recent Nebraska convention.

I. J. DEVOE (left) Lincoln, and FRANK HARTZELL, Omaha, were photographed at the Nebraska convention. Mr. Devoe spoke on tax matters and Mr. Hartzell helped with the convention program.

D. M. DAVIS, Aurora, retiring president of the Nebraska Telephone Association, was photographed by the cameraman as he addressed the convention last week.

EMERY HUNT JR., Blair, vice president of the Blair Telephone Co., was snapped by the cameraman at the Nebraska convention while he was examining one of the exhibits.



ROEBLING *"completes the call"*

—FROM LINE WIRE . . . TO SWITCHBOARD CABLE

"Operator, I want New York"—or "Los Angeles" or "South America"—and in a matter of seconds, the call is completed.

To the engineers responsible for maintaining this efficient service, Roebling offers the best safeguards against wire and cable failure . . . a century of wire-making experience, thorough knowledge of telephone company requirements and a complete line of the finest wires and cables that modern manufacturing techniques can produce.

JOHN A. ROEBLING'S SONS COMPANY

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fare, D. M. Davis, of Aurora, president of the state association, said: "In this tremendous effort which our nation is making the telephone plays a paramount part, for, along with other lines of communication, we constitute the nerve system over which the program is set in motion, coordinated and operated. It is our duty to maintain, operate and safeguard our properties in a manner that will insure uninterrupted and satisfactory service at all times."

Mr. Davis touched briefly upon tax matters, censorship of communication, government restrictive orders to conserve vital metals, civilian defense program, getting telephone men placed in the Signal Corps, and other subjects which were on the program for more detailed discussion by other speakers at the convention.

M. B. Rhodes, special agent in charge of the Omaha office of the Federal Bureau of Investigation, told how espionage and sabotage are carried on by alien agents and others. He urged telephone people to report to his office any cases they may discover which seem to warrant investigation.

I. J. Devoe, Lincoln, general auditor of the Lincoln Telephone & Telegraph Co. and chairman of the accounting committee, United States Independent Telephone Association, talked on tax problems which affect the smaller companies—not only the present taxes but the outlook for additional taxation. During his discussion Mr. Devoe invited questions and received many, especially by owners of companies who have various billing arrangements and those who have received claims that certain individuals and organizations are exempt from paying the tax. He assured the group that the National association is doing all it can to encourage Washington to simplify the tax as much as possible without lessening the revenue, particularly in regard to the tax on long distance calls.

Roderic B. Crane, assistant dean, College of Applied Arts, University of Omaha, gave an interesting lecture on "Financing the War." He told about the need for the government to spend vast sums of money for war materials, the need to obtain great sums of money from the public to finance the war, the danger of inflation, and other problems connected with winning the war.

"People in the countries involved in war must make sacrifices which lower the standard of living," Professor Crane explained. "We in America have enjoyed a high standard of living while the people of Japan have suffered a low standard of living. If the war requires that the standard of living in our country be reduced, say 20 per cent, we should be able to stand it much better than the Japs could stand a 20 per cent reduction in their standard of living."

GEORGE M. KLOIDY

Mr. Pitcher presented an interesting discussion of affairs going on in Washington which will affect telephone companies. He also gave an interesting report on telephone service in England under war conditions, such as replacements of men by women, employment of men operators at night and other changes which have taken place. He urged telephone people to tell the public about their difficulties and to keep the public posted on changing conditions through advertising, inserts with the bills, interviews and other informative means which will result in maintaining better public relations.

Because the problems facing the telephone companies today seem to be similar to those during the first World War, Duane T. Swanson, member, Nebraska State Railway Commission, Lincoln, delved into old commission records and gave the audience the benefit of his research.

"Present trends indicate that many of the problems facing telephone companies today are similar to those of the first World War 25 years ago," explained Commissioner Swanson, "so I obtained the commission's records for 1916 to 1921 and selected some excerpts from the files which I hope will be helpful to you telephone people as well as the commission."

He then went on to relate that back in 1917 the increase in the costs of furnishing telephone service made it necessary for many telephone companies to apply for higher rates and other companies sought some relief in refinancing at lower interest rates. Mr. Swanson's research revealed that from 1916 to 1921 a majority of the telephone companies operating in

The annual banquet held during the Nebraska telephone convention was a gay evening.

Money Talks ALL DOWN THE LINE!

WRITE FOR SPECIAL BULLETIN

Do you know *why* the new Western Union *Rubber* Insulators are cutting down breakage costs so successfully? And eliminating a lot of reinstallation expense, as well! It's the best news on the wires today—and we can say so frankly because these

WESTERN UNION *Rubber* INSULATORS

were designed and proved by Western Union under "tough" conditions of coastal fog and humidity. Continental collaborated in their creation by developing the precisely right rubber compound for insulator service. It's too big a story to tell in any one advertisement, so we've issued a special folder-bulletin that will give you the *facts*. Just write for it now.

CONTINENTAL RUBBER WORKS
ERIE, PENNA., U. S. A.

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NORTHERN PENINSULA MICHIGAN
NORTHERN WISCONSIN AND
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With ample facilities and stocks of desirable sizes ready for QUICK SHIPMENT from Gladstone, Michigan, on the shore of Little Bay de Noquet, Lake Michigan. Minnesota Transfer, New Brighton Yard, Minnesota, adjacent to St. Paul and Minneapolis. Insuring complete service, quality and modern approved butt-treating facilities. Also large complete stocks of Western Red Cedar Poles in the same yards. Northern White and Western Red Cedar may be loaded in same car if necessary.

A corner section of Northern White Cedar pole storage Gladstone, Michigan, plant.

The MacGILLIS & GIBBS COMPANY
MILWAUKEE, WISCONSIN

Also from
Kellogg Switchboard & Supply Co.
Chicago, Illinois

Nebraska found it necessary to apply for increases in rates which were granted by the commission. He spoke very highly of the conference method of settling many matters involving the public, the commission and the telephone companies.

Col. O. S. Albright, Signal Corps Officer, Seventh Corps Area, Omaha, impressed the audience with the necessity for close cooperation between the telephone companies and the Signal Corps and he praised the assistance he had received from telephone companies in the past during Army maneuvers and on other occasions. He spoke of how the aircraft warning service now operating in many localities depends on telephone service, as do the ordnance plants and other plants engaged in producing war materials.

Colonel Albright explained how the Signal Corps is anxious to get experienced telephone men into its organization and he pointed out the opportunities that these skilled workers would have. This arrangement is being handled through the sponsorship of the telephone associations (TELEPHONY, March 28, p. 9).

H. F. McCulla, general commercial superintendent, Lincoln Telephone & Telegraph Co., who introduced Colonel Albright, stated that the board of directors of the Nebraska association had pledged the full support of the association to the Signal Corps.

Mark T. Caster, State Salvaging Administrator, appealed to the assembly to be sure to turn in all metal that cannot be used, because this scrap metal is needed badly to keep the wheels of the war production plants in motion.

In speaking on the subject "The Telephone and the War," O. E. Lowry, executive assistant, Northwestern Bell Telephone Co., stated: "The telephone is vital to the entire war effort, as I am sure we all realize. We have a job to do. That job takes in our small exchanges as well as our larger ones. The telephone industry in Nebraska has an important task even though we are not one of the great industrial centers of the nation and do not have vast army camps, naval bases and shipyards.

LAURETTA ROWLEY (left) and MERLE MARKUSON, both of the Lincoln Telephone & Telegraph Co. who assisted in conducting the operators' conference at the Nebraska convention.

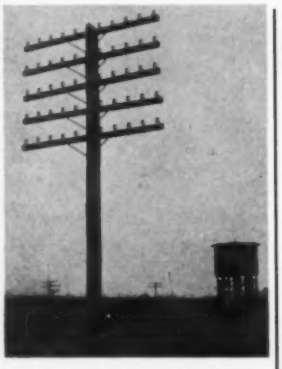
"What is that job? In brief, it is first, to meet promptly and fully the war requirements for telephone service, and then to provide the general public with the best service possible under existing conditions." He then reviewed some of the general problems facing the telephone industry today, followed by a discussion of some of the jobs to be performed and the measures to be considered in these war times.

In conclusion, Mr. Lowry said: "In spite of all the perplexing problems facing telephone companies today, I feel confident that they will meet their responsibilities during the present emergency in a most outstanding manner. In the first place, the telephone industry is accustomed to meeting emergencies. It is noted for coming through in a fine way whenever the going is tough. Look back on any great disaster and you will find that numerous acts of heroism have been performed by telephone people in maintaining service and that the most difficult obstacles have been surmounted. Telephone people don't spend much time in trying to determine how the possible can be accomplished. They are too busy figuring out how to do the impossible. It is because of this fine tradition that I say the telephone industry will meet its responsibilities during this emergency in spite of all the problems with which it is faced.

"But there is still another and more important reason why the telephone industry will do this job. Telephone people are patriotic and loyal Americans. They know what telephone service is contributing and will continue to contribute to the thing we are all hoping and praying for—COMPLETE VICTORY. They place their country's needs ahead of their own personal gains. They will not let America down. True patriotism means that each of us will work harder, produce to the limit of our abilities and keep our chins up. And this is the attitude which will win for us—as an industry and as a nation."

George M. Kloidy, secretary-treasurer of the Nebraska association, gave an interesting report on his activities, including interpretations of new legisla-

(Please turn to page 65)



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PINE POLES

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Bartlett Mfg. Co.
Line Clearing
SAW

Makes *fast-clean - easy* cuts and is easy to file.

Streamlined, speedy-cutting pruning saw with big, husky teeth that cut the full length of the blade. Made in either 24 or 26 in. length with choice of **two** types of handle.

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THIS (OR) THIS (OR) THIS

PLUS THIS → CONVERSION KIT MAKES THIS

Modern Handset Pay Station

PREPARE FOR A BUSY SEASON

THE GRAY MFG. CO.
HARTFORD, CONN.

WITH camp personnel, as well as business activity definitely on the increase, this summer should be an all out pay station season. Put your old equipment back into service, increase your revenue, conserve Defense material.

If present equipment is in good condition, apply Conversion Kit No. 70,247, consisting of mounting plate and signal transmitter, in your own shop. If not, send us your units for factory reconditioning. Charges reasonable, work will be like new. Please give priority rating when ordering.

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Accurate Fault-Locating soon pays cost of Type U Test Set

An unusually strenuous job of trouble-clearing is faced by one of the large Canadian telegraph and telephone companies whenever a fault develops in any of their numerous submarine cables. These cables lie in waters which are icy, notoriously rough, and full of fast-running cross-currents which whip the cable back and forth whenever it leaves the bottom.

The time, cost and hazard of these cable-clearing operations are reduced appreciably by the accuracy of the L&N test sets used to locate the faults. By helping send boats (or the cable-ship) to the correct spot, the sheer accuracy of the test instrument often enables it to save, on one repair job, more out-of-pocket cash than is represented by its own cost.

One of this telephone company's favorite instruments is our new Type U Test Set; a Wheatstone bridge made especially for telephone trouble-shooting.

5430-A Type U Test Set

A single switch on this instrument changes all internal connections to either the Murray, Varley or Hilborn loop, or to the measurement of circuit resistance. Switches are big and well apart, so that the user can keep his gloves on. Loop diagrams, and directions for figuring distance by means of each loop, are in lid of set. For further details, ask for Catalog E-53-441(1).

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Jrl Ad E-53-441(5)

The Operator's Corner

By MAYME WORKMAN
Traffic Supervisor
The Illinois Telephone Association

WHEN A PARTY moves from a number and a second party moves to that residence and has the same number, how can you prevent the second party from getting the first party's calls? Before answering this query, may we point out that only in case of necessity should a number appearing in the current directory be reassigned to another subscriber. In cases where it is necessary to do so, every precaution should be taken to avoid annoyance to the new subscriber.

Some telephone companies solve this problem by using a temporary suffix in conjunction with the telephone number, such as, "X," or "Y." For example 2178J is listed in the current directory as J. B. Smith, 218 Main Street. Mr. Smith leaves the city and his telephone is disconnected. A new subscriber, A. R. Burns, is assigned his number with the suffix "X." If the switchboard operator has a call for "2178JX" she will ring the number. If she has a call for "2178J," she refers the call to the intercepting operator, or, if switchboard bulletins are provided, she refers to her bulletin for the necessary information.

When the intercepting operator refers to her numerical record, she will find recorded:

(D) J. B. Smith
X O.K.—A. R. Burns. ("X" is entered in red.)

Installation of a telephone with a temporary suffix. The disconnect or change information concerning the old station is shown.

Phrase used by intercepting operator: "2178J, J. B. Smith's number, has been disconnected."

Switchboard markings should be used where calls are to be intercepted, a black signal plug is used for main and jack per station party lines. If there is a black signal plug in the called line, the operator will refer the call to the intercepting operator, or, where switchboard bulletins are provided, she will refer to her bulletin for the necessary information.

A yellow underline with a green dot in the center of the underlining is used where a temporary suffix is assigned. If the call is for a number without a suffix, the operator will refer the call to the intercepting operator, or, if switchboard bulletins are provided, she will refer to her bulletin for the necessary information. If the number is given with a suffix, the operator will attempt to complete the call in the regular way.

Failure to use switchboard markings frequently results in service irregularities and dissatisfaction on the part of the customer. A switchboard operator has many responsibilities and it is unfair to burden her unnecessarily by requiring her to commit to memory information which can and should be handled by using the prescribed switchboard marking.

Questions from Illinois Operators

1. Is the filing time encircled when a second ticket is required on a station-to-station collect call?
2. After you have passed a ticket transfer and the station to which you have transferred the ticket does not call you back to tell you if they have talked, should you call and ask her?
3. In a case where a party places a call from one number and a report charge is due on the call, then goes to another town and places his call, is the report charge deducted if the original operator has not passed you a ticket?
4. On the first attempt on a station-to-station collect call, does it change the classification if the report of "no one to accept charge" or, "charge refused," if the call is cancelled or "hold for ag?"
5. When a party moves from a number and a second party moves to that residence and has the same number, how can you prevent the second party from getting the first party's calls?

The answers to these traffic questions are presented on page 52.

HEMINGRAY
GLASS INSULATORS
"LINE UP" with Hemingrays for dependable, low cost service!

- No aging or deterioration.
- Unaffected by temperature changes.
- Great mechanical strength.
- Clear, flawless.
- Sustained high dielectric strength.
- Low in ultimate cost.

Comparable Codes

Hemingray	9	10	12	14	16	21	42	43	50	53
Whitall Tatum	9	3	13	14	2		1	10		15

Order Hemingrays from us today and get real service and delivery.

BUCKEYE TELEPHONE and SUPPLY COMPANY
COLUMBUS, OHIO

TAYLOR-COLQUITT CO.
CREOSOTED PINE POLES

T-C Creosoting Gives Poles Full Protection

This cross-section of a T-C Creosoted Southern Pine pole shows that the sapwood has been uniformly impregnated clear through to the solid heartwood.

As the result of such complete penetration — made possible by T-C scientific conditioning and treating — the timber retains its full strength throughout its long life. And long life means lower cost per year of service.

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can take it. A comparison will soon convince you of their superiority.

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SOLID SHANK
The Strongest Known Spoon
● Solid shank construction, originated by True Temper, is universally acclaimed by all important shovel users—railroads, mills, mines—as first in service life, utility and efficiency.
The Sturdee Solid Shank Spoon is forged in one piece from a solid bar of steel—blade, shank and socket are all one—no seams, laps or welds to break in service.
A chain is no stronger than its weakest link. The Sturdee Solid Shank Spoon has no weak spots. Its strength is matched and balanced. Every power, light, or communication company who has tried this spoon, now specifies it to the exclusion of any other type. To start a program that will save cost and increase efficiency, use Sturdee Solid Shank Spoons.
STURDEE TOOLS
a TRUE TEMPER PRODUCT
Western pattern, Sturdee Solid Shank Heavy Duty Spoon. Blade, shank and socket forged in one piece from a solid bar of steel. 13 gauge, heat treated blade. XX grade hickory or ash handle — lengths 6 feet to 12 feet.
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COMING CONVENTIONS

United States Independent Telephone Association, Spring Conference, Hotel Stevens, Chicago, April 28 and 29.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 6 and 7.

Illinois Telephone Association, Pere Marquette Hotel, Peoria, May 12 and 13.

Pennsylvania Independent Telephone Association, Sterling Hotel, Wilkes-Barre, May 21, 22 and 23.

New York State Telephone Association, Hotel Syracuse, New York, May 25 and 26.

Wisconsin State Telephone Association, Pfister Hotel, Milwaukee, June 3 and 4.

North Dakota Telephone Association, Dakota Hotel, Grand Forks, June 9 and 10.

Oregon Independent Telephone Association and Washington Independent Telephone Association, Joint Convention at Portland Hotel, Portland, Ore., June 12 and 13.

California Independent Telephone Association, Miramar Hotel, Santa Monica, June 18 and 19.

Kentucky Independent Telephone Association, Henry Clay Hotel, Ashland, September 15 and 16.

United States Independent Telephone Association, Hotel Stevens, Chicago, Ill., October 13, 14, 15 and 16.

Missouri Telephone Association, Muehlebach Hotel, Kansas City, November 16, 17 and 18.

Telephone Assists Invalid Reporter

Using a telephone attached to his bed to receive and send news, invalid George Nelson, Canby, Ore., is still an active country reporter for a nearby city newspaper, according to an article in the *Wisconsin Telephone News*, published for employes of the Wisconsin Telephone Co.

Although unable to walk or use his fingers for typewriting, he gets around in a wheel chair powered by electric batteries and in that way gathers his items. Then he telephones the news to the newspaper.

V V

No Telephone Service for Two Pennsylvania Villages

Two Pennsylvania villages, Pleasant Hall and Upper Strasburg, have been left without telephone service as the result of the anticipated purchase by the government of approximately 37 miles of telephone line owned by the Letterkenny Telephone Co., which extend through the site of the Letterkenny Ordnance Depot, it was recently disclosed.

The Letterkenny lines were served through the Chambersburg exchange of the United Telephone Co. which operates from Harrisburg.

Because the defense project took the "middle" out of the rural telephone company's lines, service to 15 customers at Pleasant Hall, Upper Strasburg and adjacent rural areas was suspended. It was said that there is no line Pleasant Hall and Upper Strasburg customers can connect with now unless they extend their present line five miles to Orrstown and there connect with the Shippensburg exchange of the United company.

Former customers of the Letterkenny line between Chambersburg and the military reservation have been absorbed by the Hamilton Telephone Co., Hamilton.

V V

Nothing Phases Private— Not Even Snakes

While trying to get a call through to his command post in South Carolina, an Army sergeant kept hearing thumps and strange noises through the receiver at his ear. Questioned as to the cause, the private at the telephone switchboard nonchalantly replied that he was "killing a snake."

After a few more thumps and delay, the sergeant, suspicious that he was being kidded, hung up and rushed over to the telephone office. There he found one triumphant private and two dead copperheads.

V V

London Supervisors Listen To Operators' Conversation

Sometimes telephone supervisors in London make a written record from a central listening post of all that girl operators have to say to one another. One recorded: "Adjacent telephonist offered telephonist peppermint. Telephonist accepted and ate." Such reports as this lead to disciplinary action against the girls.

SUB-CYCLE

A RECOGNIZED STANDARD CONVERTER FOR SIGNALING USE

SAFEGUARD YOUR RINGING SERVICE WITH THIS MASTER RINGING CONVERTER

Meets Fully Every Requirement for *TROUBLE-FREE SERVICE*

Sub-Cycle provides ample power—requires no routine maintenance—cannot interfere with radio reception—is economical in operation—and quiet—output voltage regulation between no load and full load is very close. In it there are NO MOVING PARTS TO ADJUST.

Sub-Cycle is manufactured in 6 models for loads ranging from the small PBX to the large central office.

Sold by Leading Distributors.

ALSO PULSATORS

THE LORAIN PRODUCTS CORPORATION

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MAINTENANCE MEN LIKE TO USE

PROTEK-SORB DESICCANT for drying cable splices...

. . . because Protek-Sorb has more than twice the moisture-capacity of other desiccants. It dries cable splices QUICKER and MORE EFFICIENTLY . . . and they *stay* dry. High insulation resistance is maintained permanently! Your regular jobber can supply you with this easy-to-use desiccant that will free you from the dangers of the "boiling-out" method and the inconveniences of "oven-drying".

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THEY certainly do—in the telephone and telegraph business, you have to expect almost anything and be ready for it. Messages must keep going through when the weather is tough. And never was it more important than right now to keep the messages flowing through the wires without interruption.

That's why so many communication engineers recommend AMERTEL Telephone Wires and AMERSTRAND Steel Strand. They have the strength to withstand severe weather conditions. They are made with accurate production control—right from the ore to finished product. And that gives you wires of "Controlled Quality." AMERTEL and AMERSTRAND are protected with a corrosion-resistant coating that is applied by the "hot dip" process. This forms a chemical bonding of the zinc and the steel. The complete, controlled union of the two metals prevents flaking of the galvanizing.

AMERTEL wires are available in high-tensile grades — 85 and 135 — as well as in the regular grades "EBB", "BB" and "Steel". AMERSTRAND is made in all standard sizes and grades.

Sold By Leading Distributors

LOOK FOR THESE TAGS.

They are placed for your protection on every coil of AMERTEL Telephone and Telegraph Wire and AMERSTRAND Steel Strand.

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Columbia Steel Company, San Francisco, *Pacific Coast Distributors*
United States Steel Export Company, New York

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COMPLETE LINE OF
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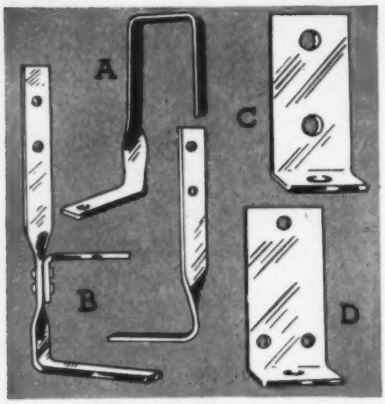
POLE LINE MATERIALS



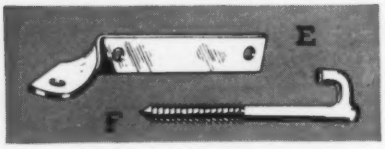
BRACKETS

all types and sizes for telephone line work

(a) Known as the Western Union standard, this bracket is clamped on the arm with a 3/8 x 4 inch carriage bolt.

(b) Standard Bracket for phantom circuits or four wire transpositions. Includes two parts, the smaller projecting above the arm. Two 3/8 inch round holes provided for lagging to the arm to prevent side movement.

(c and d) Telephone Distributing Brackets, ideal for running twisted pairs in pole and house work. Used with either two- or four-grooved porcelain knobs. Formed from mild steel, hot dip galvanized.



(e) Telephone Corner Brackets are used where the lead from the pole comes to the building at an angle. Used with either two- or four-groove porcelain knobs. Made in four sizes.

(f) The Oliver Drive Hook is used for wire clamp attachments on buildings, arms or poles. Drive threads hold tight-drive head speeds installation and line erection.

OLIVER
IRON AND STEEL
Corporation
Makers of Pole Line Hardware Since 1894
PITTSBURGH, PENNSYLVANIA

PHILCO ADVERTISING ENLISTS FOR THE DURATION

WITH advertisements appearing in the May issues of leading weekly and monthly magazines, Philco launches a unique campaign to tell the public of its participation in the nation's war effort, it was announced by Ernest B. Loveman, advertising manager of Philco Corp., Philadelphia, Pa.

Departing from the customary practice of illustrating implements of war and other subjects related to the use of those implements, Philco features in its campaign a series of inspirational cartoons, drawn by the country's leading editorial cartoonists relating to America's war effort.

Among cartoonists whose work will appear in opening advertisements of the series are Herbert Johnson, for many years editorial cartoonist and art director of the *Saturday Evening Post;* Rollin Kirby, famed *New York Post* cartoonist; Rube Goldberg of the *New York Evening Sun;* Arthur Szyk, prominent for his inspired satirical work; C. E. Sykes, cartoonist of the *Philadelphia Evening Ledger,* and Carl Rose whose humorous and printed cartoons are seen regularly in the *New Yorker* and other national publications.

"The primary purpose of the new Philco campaign is to convert the company's national advertising just as its plant facilities have been converted to the national war effort," Mr. Loveman said. "It was felt that by utilizing one of the most popular features of the day—the editorial cartoon—advertising columns could make as great a contribution to the nation's war morale as the editorial columns themselves. Thus, advertising, by doing its part in the combined effort of the nation for victory, would continue to serve a valuable and constructive purpose during the emergency."

The cartoonists were asked to interpret the nation's ability and determination to win through to victory. They were given the same freedom of expression they enjoy in producing cartoons for their own publications. Naturally, no commercial restriction was placed upon their work nor were they asked to express any commercial idea.

The text points out that the cartoons appearing in the series of advertisements are being used in poster form as an inspiration to the workers on the Philco production lines. As a further effort to extend the influence of the cartoons, full size reproductions are offered without cost to firms and individuals who send in their requests from the advertisements.

This new Philco campaign with its unusual conception and approach is the work of Sayre M. Ramsdell Associates, Inc., newly-formed advertising agency in Philadelphia which now handles the Philco account.

Answers to Questions on Page 48

1. No. The call is treated as a new call, therefore, there would be no reason for encircling the filing time.
2. After a call has been transferred from one originating toll center to another, no further action should be taken by the operator at the first OTC, that is, the operator who passed the call—unless she is instructed to do so by the operator at the second OTC, that is, the operator who received the call.
3. No.
4. If neither the called station nor the calling party will agree to pay for the call on the first use of the toll circuit, if the call is cancelled it will be subject to a report charge if the call originates and terminates in Illinois. If there is no one there to accept the charge and the calling party wishes word left on the call and this action is taken, the call will be subject to the person-to-person rate. If the calling party requests the operator to hold the call until later, "hold for ag," if the call is to be tried again as a station-to-station call, it will be considered a new call.
5. Please refer to preface for answer.

DRIERITE

The Modern DESICCANT FOR DRYING CABLE SPLICES

DRIERITE dries the Cable Splice by positive absorption of all moisture from wires, insulation, bandage and surfaces inside the sleeve. Application is easy and rapid.

The snow-white granular **DESICCANT** is neither poisonous, corrosive nor abrasive, and does not evolve gas, fume or odor either in storage or in use. It eliminates all chance of fire, accident or discomfort to workmen or occupants of buildings.

STANDARD PACKAGES

1/8 Pint Can (50 grams) 48 per Carton.
1/2 Pint Can (200 grams) 12 per Carton.
1 Quart Can (800 grams) 12 per Carton.

For sale by the Manufacturer and leading telephone supply houses.

W. A. HAMMOND DRIERITE COMPANY
YELLOW SPRINGS, OHIO

Today — as never before —

the safest place for telephone

cable is underground —

in ORANGEBURG CONDUITS

ORANGEBURG *Standard*
for installation *with* concrete encasement

NOCRETE
for installation *without* concrete encasement

Build safety into your system with
ORANGEBURG *Conduits*

MADE AT ORANGEBURG, NEW YORK, BY THE FIBRE CONDUIT COMPANY
292 MADISON AVENUE, NEW YORK CITY

Sales Agent — Distributors

GRAYBAR ELECTRIC CO., INC. *(offices in principal cities)*
GENERAL ELECTRIC SUPPLY CORP. *(and associated houses)*

---

2 things to remember:

with

RAY-O-VAC COMPANY, MADISON, WISCONSIN

ASK ANY LINEMAN—

with experience—about *Crapo* High-Tensile Line Wire! He'll tell you that it can be handled with the same ease and pulled in with the same facility and by the same methods, as any other telephone line wire.

"In fact," he will add, "you can build more line in a day with *Crapo* High-Tensile Line Wire than with the old wire." Spans, of course, can be much longer; distances between poles greater. That saves time and material; cuts construction costs.

And, when *Crapo* High-Tensile Line Wire is sagged according to carefully prepared tables,* you get a better line—one that will stand up longer, require less maintenance and make for improved service.

Be sure to investigate the outstanding advantages of these two high-strength line wires: *Crapo* HTL-85 for spans up to 225 feet in Heavy Loading Districts; *Crapo* HTL-135 for spans to 350 feet!

Ask your jobber's salesman or write for Bulletins No. 201 and No. 202 containing helpful data and construction practice information!

*Complete stringing sag data mailed on request.

Produced by the Manufacturers of *Crapo* Galvanized Steel Strand, Telephone and Telegraph Wire, Construction Wire, Tie Wire Ground Wire.

INDIANA STEEL & WIRE CO.
MUNCIE, INDIANA

Commissions and Courts

FCC and NARUC Committee Study Separation Problem

The date of May 20 has been set for a conference in Washington between Ray C. Wakefield and Paul A. Walker, members of the Federal Communications Commission, and a special cooperation committee of the National Association of Railroad & Utilities Commissioners, to complete a study of the simplified method of telephone property and revenue separation.

The NARUC committee is composed of the following men: Carl C. Baker, California Railroad Commission; Richard J. Beamish, Pennsylvania Public Utility Commission; J. J. Murphy, South Dakota Public Utilities Commission; Leon Jourolmon Jr., Tennessee Railroad & Public Utilities Commission, and Robert A. Nixon, Wisconsin Public Service Commission.

Prior to the May 20 conference a final two-weeks' study will be conducted in Washington by E. F. McNaughton, director of public utilities for the California commission, who heads the FCC-NARUC staff committee, and the FCC staff members who have been engaged in the survey of the separation problem.

V V

Bell Excludes Certain Areas from Rate Increase

Federal Communications Commission received notice April 15 from the Northwestern Bell Telephone Co. that additional communities would be excluded from an Iowa state-wide 15 per cent increase in telephone rates, announced by the company April 6. Added to the communities so excluded are: Estherville, Muscatine, Rock Rapids, Sibley, and Spirit Lake, Iowa.

Complaints from Iowa citizens prompted the commission on April 14 to direct the company to justify the increase in communities where service of interstate character is given. Previously the company had excluded from the rate increase the communities of Akron, Davenport, Dubuque, Hawarden, Lake Park, Northwood, and Sioux City, Iowa, in which interstate exchange service is rendered. As to regulation of intrastate rates, there is no state commission or local regulatory authority having jurisdiction to pass on telephone rates.

The company's notification to the commission did not indicate any abandonment of the 15 per cent increase for intrastate telephone service otherwise applicable in Iowa.

V V

New Chairman Named for Kentucky Commission

J. J. Greenleaf has been named chairman of the Kentucky Public Service Commission, replacing John Kirtley, resigned. Governor Johnson has appointed Judge George S. Wilson of Owensboro to fill the unexpired term ending January, 1945.

V V

Fraudulent Use of Telephone Found by Wisconsin Court

In the case of the Wisconsin Telephone Co., Milwaukee, Wis., against Charles H. Anderson et al, the circuit court, Milwaukee county on March 11 granted a permanent order enjoining Mr. Anderson and others from using or entering into or carrying out an agreement for use of unlimited residence telephone service for the purpose of soliciting other telephone subscribers to purchase theater tickets, flags or other merchandise, for sale of which defendants are promised or receive a commission or compensation.

The court found that such use of the telephone service was of a business nature and would come within the classification of business service under the company's filed tariffs. It was also found to be in violation of terms of contracts under which the unlimited residence service was furnished.

It is in evidence that these solicitations were made for an organization of charitable or social aspect, but the court looks upon that so-called charitable end of the business as subordinate to its real purpose. It amounted to no less than the purchase for a consideration by the defendant, Mr. Anderson, of the use of the name of that charity which was employed in the sales work done by these solicitors. It was used to mislead hundreds of people to contribute to charities that

received a very small amount of the money collected.

The court held that to permit the use of unlimited residence service for business purposes would be discriminatory and in violation of Wisconsin statutes. The defendants were charged with conspiring to make unlawful use of their residence service to the annoyance, injury and damage of the telephone company and to the annoyance of other subscribers. It is the duty of the telephone company to protect all of its subscribers from improper use of telephone facilities.

V V

Rhode Island Senate Recommends Rate Inquiry

The Senate telephone rate investigating committee, in a special report to the Rhode Island General Assembly on April 14, proposed "a general and all-inclusive investigation" of telephone rates that would "save Rhode Island subscribers approaching $1,000,000 a year." At the same time it proposed that the cost of such an investigation be borne by the New England Telephone & Telegraph Co.

The committee pointed out that by virtue of the enactment of a recent resolution which Governor J. Howard McGrath signed, it is now a permanent committee of the General Assembly authorized to function after final adjournment and to continue to function until its investigation is completed.

After summarizing the highlights of previous reports to the General Assembly, the committee said:

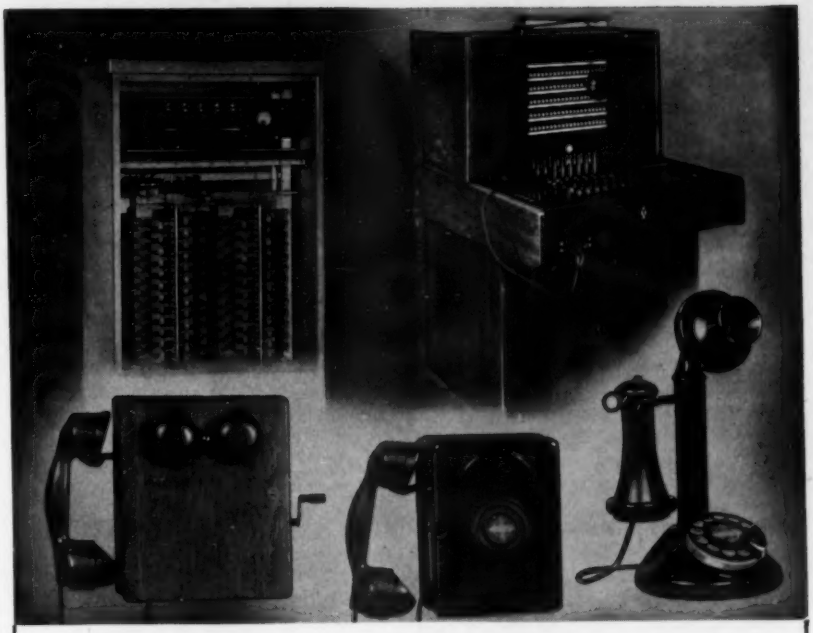
"We have many other matters requiring further study, not the least of which is the profit of the parent company derived from, but not credited to, the subsidiary, arising from radio, teletype, private wire leases, patent monopoly and experimental costs.

"Then, too, the United States Supreme Court, by its decision handed down March 16, 1942, has upset the old formula of rate-making, which has so long favored the utilities."

V V

Question Commission Interference In Public Utilities

All Nebraska railroads have joined in an appeal to the state supreme court for a ruling as to what extent the state railway commission may go in interfering with sound and economical management of a public utility. The particular point raised has to do with the assumption by the commissioner of the right to determine whether or not a caretaker may be substituted for an agent at railroad stations with low revenue records.



WHAT CAN WE REBUILD FOR YOU?

"AR" Rebuilding Service includes the factory rebuilding and modernization of manual boards, P.B.X.'s, automatic equipment, toll boards, telephones, etc.

AR Rebuilding Service is not confined to telephones, but includes manual and automatic equipment of all kinds and types, up to large central office switchboards. In most cases, substitute equipment can be supplied during the rebuilding period, if desired. Remember, AR rebuilding means a complete factory job of reconstruction and modernization, using latest methods and skilled, experienced telephone craftsmen. . . . Write for prices and full information.

THE MARK OF QUALITY IN REBUILDING SERVICE

AUTOMATIC ELECTRIC

ORIGINATORS AND DEVELOPERS OF STROWGER STEP-BY-STEP MACHINE SWITCHING AUTOMATIC DIAL SYSTEMS

MAKERS OF TELEPHONE, SIGNALING AND COMMUNICATION APPARATUS
ELECTRICAL ENGINEERS, DESIGNERS AND CONSULTANTS

Distributors in U. S. and Possessions:
AMERICAN AUTOMATIC ELECTRIC SALES COMPANY,
1033 W. Van Buren St., Chicago, U. S. A.
Export Distributors: AUTOMATIC ELECTRIC SALES COMPANY, LIMITED

Wage Administrator Cannot Transfer Power

In the case of the Cudahy Packing Co. of Louisiana Ltd. vs. Holland, the U. S. Supreme Court held on March 2, that the Wage and Hour Administrator is without authority under the Fair Labor Standards Act to delegate to the regional director his statutory power to sign and issue subpoenas by which a defendant is commanded to appear and answer plaintiff's bill.

Such authority, it was held, was not conferred by paragraph 4 (c) of the act providing that the principal office of administrator shall be in the District of Columbia, "but he or his duly authorized representative may exercise any or all of his powers in any place"; the only function of such section is to provide that administrator or his representative may exercise either within or without the District such power as each possesses.

It was also found that authority to delegate subpoena power cannot be inferred from general nature of the administrator's duties and from the fact that under paragraph 11 of the act he may through designated representatives gather data and make investigations authorized by the act. "Unlimited authority of an administrative officer to delegate the exercise of the subpoena power is not lightly to be inferred. It is a power capable of oppressive use, especially when it may be indiscriminately delegated and the subpoena is not returnable before a judicial officer."

The entire history of the legislation controlling the use of subpoenas by administrative officers was held to indicate the congressional purpose was not to authorize by implication the delegation of such power.

V V

FCC Information Director Enters Army as Captain

George O. Gillingham, director of information for the Federal Communications Commission for the past two years, recently resigned from the commission to enter chemical warfare service of the Army as a captain. He served in the first World War also.

V V

May Seek Rate Reductions In Chicago Suburbs

Action to rectify inequalities in telephone rates in Chicago suburbs has been initiated by the Illinois Commerce Commission. John D. Biggs, commission chairman, instructed B. W. Kokum, engineer in charge of rates for the commission, to gather evidence upon which a citation may be issued. The citation would require the Illinois Bell Telephone Co. to show cause why rates should not be lowered.

Charges for suburban calls are now based on a mileage system instituted about 1900, while city calls are based on a measured rate.

Within Chicago, calls may be made for a distance of more than 30 miles for five cents, while calls from Chicago to suburbs only 16 miles away cost as much as 15 cents.

Seven years ago the company designated the territory extending 17 miles from the downtown business district as the metropolitan area and instituted a metropolitan service under which calls may be made between the suburbs and the city at four cents a call plus a monthly 50-cent line charge.

But it still costs a La Grange resident 10 cents to call Bellwood, three miles away; Berwyn, three miles; Cicero, five miles; Elmhurst, seven miles; Forest Park, four miles.

The same conditions exist on calls between other suburbs.

V V

Northwestern Bell Takes Rate Appeal to Supreme Court

The South Dakota Supreme Court had under advisement April 7 an appeal of the Northwestern Bell Telephone Co. from a Minnesota county circuit court order which upheld a public utilities comission denial for higher rates in Sioux Falls, S. D.

The company had asked the increase in 1939, and the commission denied it on the grounds the firm already was making 3½ per cent return in its investment. The firm contended it was making only 2.76 per cent and said the rates were confiscatory.

The discussion centered around methods of calculating the value of the firm's property and proration of expenses to the local exchange and to the toll services that went through it.

V V

El Paso, Tex., Rate Hearing Underway

An attempt to discredit the testimony of Cyrus G. Hill, telephone rate engineer for El Paso, Tex., was made April 8 by counsel for Mountain States Telephone & Telegraph Co. in the current hearing in which the city seeks to force the utility to reduce its local telephone rates.

Elmer Brock, chief counsel for the telephone company, closely questioned Mr. Hill in connection with the latter's investigation of Wisconsin telephone rates in 1934, and referred to a Supreme Court ruling which questioned competency of Mr. Hill in figures which he used in the Wisconsin case.

IMMEDIATE DETECTION of cable leaks with AIRCO DRY NITROGEN

You're sure that cables are constantly protected when dry nitrogen under pressure is guarding the lines. Any leak causes a pressure drop which immediately flashes the alarm to the control board. Breaks or cracks can be quickly located before serious damage occurs.

Simple, safe, reliable—the nitrogen method maintains telephone service and provides low-cost insurance against expensive cable repairs. Airco's high purity nitrogen and dependable testing equipment is used throughout the nation. For complete information consult your nearest Airco office.

AIR REDUCTION

General Offices: 60 EAST 42nd ST., NEW YORK, N. Y.
IN TEXAS: MAGNOLIA-AIRCO GAS PRODUCTS CO.
General Offices: HOUSTON, TEXAS
OFFICES IN ALL PRINCIPAL CITIES

Mr. Hill, who has been answering and explaining highly technical questions involving operation of the American Telephone & Telegraph Co. and its subsidiary, the Western Electric Co., manufacturing concern for the company, offered explanations as to his procedure in the Wisconsin case.

Mr. Brock indicated to the city council, which is conducting the hearing, that he would ask for a delay of another month in the investigation in order to allow his accountants and engineers more time in which to study evidence introduced by the city's engineer, Mr. Hill, and its rate accountant, Vivian Edwards. The hearing now being conducted is a continuance of a hearing started last January.

City officials indicated they might allow the company a few days in which to review the testimony, but they said they would insist that the hearing be concluded during the current investigation, as attorneys for both sides had agreed, in the recess allowed in January, to conclude presentation of all matters during the present hearing which began April 6.

The telephone company's first witness was Allen B. Crunden, of New York, assistant comptroller of the American Telephone & Telegraph Co. Combined profits of all operations of the A. T. & T., its general departments, laboratories and Western Electric Co. amounted to 3.3 per cent on the total investment, less depreciation reserve, in 1941, the witness said. From 1929 to 1941, inclusive, including the depression era, the average profits were only 2.2 per cent, he said.

In 1929 net earnings went as high as 8.7 per cent on the investment, while the net earnings in several of the depression years were carried in "red ink," he said.

At the April 7 hearing Mr. Hill had claimed that El Paso's telephone equipment is obsolete and said the company's operating cost would be cheaper if dial equipment were installed. How that could be accomplished under WPB's present rigid restrictions on new installations was not explained by Mr. Hill.

Testifying April 11, Paul E. Remington, general auditor of the company, said that in 1912, despite the fact that the greater part of the company's property had been constructed by Bell operating companies, an appraisal was made of all the property of the Mountain States company's system. This inventory, he said, was used as a basis for the opening balances of the company, January 1, 1913 under the accounting system adopted by the Interstate Commerce System.

"The investment now shown on the

HANG THE LOAD ON HUBBARD HARDWARE
Distributed by 172 Leading Electrical Jobbers located throughout the U. S.
"There is One Near You!"
HUBBARD
HUBBARD AND COMPANY
PITTSBURGH . . . OAKLAND CALIFORNIA . . . CHICAGO
MANUFACTURERS OF A COMPLETE LINE OF HARDWARE
FOR TELEPHONE REQUIREMENTS SINCE 1900

They are all
PORTER
CUTTING TOOLS
and yours for SPEED
LABOR SAVING
and SAFETY

STRAND
CUTTER

Cut quick and all the way through — stranded guy wires, insulated wires and all types of cable. Lots of power, plenty of endurance and built with the precision of fine tool making. Be sure it is a Porter — HKP on the grips.

NO. 10 CCRE
WIRE
CUTTER
IN BELT HOLSTER

Here is a dandy small tool for linesmen — cuts new high tensile wire, stays sharp, easy to carry in strong real leather belt holster. Only eleven inches long with holster, weighs only 2 pounds. A giant for work.

THE
POLE PRUNER

Ruggedly and scientifically designed to meet requirements of telephone and power companies for line clearing. Both blades are sharp and are high quality steel forgings. Light in weight. Requires minimum operating power.

SEND FOR
PORTER CATALOG
describing fully these and many other cutting tools.

H. K. PORTER, INC.
EVERETT, MASS.

telephone company books for the El Paso exchange as well as for the company as a whole is a substantially correct representation of the original cost of the existing property," Mr. Remington said. "Accounts have been kept in accord with strict federal regulations for 29 years during which time the major part of property on hand at beginning of period had been retired and removed from accounts."

Contrary to the city auditor's report, he added, the company makes no claim beyond right to a fair return on present value of its property which takes depreciation into consideration. This was made clear in previous testimony on depreciation expense and the depreciation reserve, said the witness.

In reply to the claim of the city's auditor that write-ups had occurred in the books prior to 1913, Mr. Remington said that what the auditor referred to were really accounting adjustments, and pointed out cases where larger write-downs had occurred during the same period.

At the end of the April 11 hearing the session was recessed until Thursday, April 16, for cross-examination and rebuttal.

V V

Files for Nomination on Nebraska Commission

Will M. Maupin, defeated two years ago for re-election as member of the Nebraska State Railway Commission has filed for the democratic primary nomination.

V V

Chairman of New Jersey Commission Dies

Frank J. Reardon, 54 years old, president of the New Jersey Public Utility Commission and chairman of the Jersey City defense council, died April 13 in the midst of preparations for a blackout in northern New Jersey. He was stricken while motoring from New York to his home.

V V

Request Increased Rates at Ft. Cobb, Okla., Exchange

The Southwestern States Telephone Co. has applied to the Oklahoma Corporation Commission for increased rates at its Fort Cobb exchange.

Proposed rates are: One-party, business, $3.00 per month, an increase of 50 cents over present rates; one-party residence, $2.00, an increase of 50 cents per month; two-party residence, $1.75, no change; business extension, 75 cents, a decrease of 25 cents; residence extension, 50 cents, no change. Other rates in the present schedule would remain the same.

A financial statement accompanying the application shows a net return of 3.5 per cent on a fair cash value of $10,243.90. The petition for increased rates, signed by all but seven subscribers, states: "When other industries close their plants because of lack of business, telephone companies continue to provide service even when the demand diminishes to half of the former volume."

V V

Bell Named Co-Defendant In Damage Suit

A suit for $52,500 damages was filed in the St. Clair county circuit court at Belleville, Ill., March 30 by Edward Bartz, Jr., and his father, Edward Bartz, Sr., against the Illinois-Iowa Power Co. and the Southwestern Bell Telephone Co. The suit is based on injuries suffered by the boy last August 4 when, the complaint says, the youth fell from a pole in an alley in Belleville. The boy seeks $50,000 damages and the father $2,500.

V V

Increased Rates at Hoffman, Minn.

The Minnesota Railroad & Warehouse Commission on April 16 issued an order granting the Hoffman Telephone Co., Hoffman, authority to place into effect the following proposed rates and charges for telephone service, upon the first billing date after April 30:

Individual line, business, from $2.00 to $2.75; individual line residence, from $1.50 to $1.75. A discount of 75 cents will be allowed where the bill is paid on or before the fifteenth day of the first month of the quarter.

V V

Oklahoma Commission O.K.'s Sale of Owasso Exchange

Sale of the Owasso, Okla., telephone exchange by the Oklahoma Telephone Co. to J. M. Nelson of Skiatook (TELEPHONY, April 4), was approved by the Oklahoma Corporation Commission in an order dated March 31.

The order reveals that Mr. Nelson paid $1,500 for the exchange, with $500 cash down payment.

Mr. Nelson has had about 25 years' telephone experience in Oklahoma and operates telephone exchanges at Sperry, Skiatook, and Collinsville. Present rates at Owasso will remain the same.

V V

Summary of Commission Hearings and Rulings

Federal Communications Commission

April 8: Authority granted Pacific Telephone & Telegraph Co. to supple-

ment existing facilities between Biggs Junction and Pendleton, Ore.

April 9: Authority granted oral argument on the proposed report in Docket No. 5188 in the matter of additional charges to operating expense account in the uniform system of accounts for telephone companies, representing 4 per cent of unfunded actuarial liability under the Bell System pension plan proposed by certain wire telephone carriers. Commission directed that oral argument be held on May 6, briefs to be filed not later than May 4.

April 14: Authority granted American Telephone & Telegraph Co. and the New York Telephone Co. to supplement existing facilities between New York, N. Y., and Philadelphia, Pa., under certain conditions.

April 14: Authority granted Wisconsin Telephone Co. and American Telephone & Telegraph Co. to supplement existing facilities between Madison and Baraboo, Wis., under certain conditions.

Illinois Commerce Commission

April 22: Hearing at Springfield on petition of Clinton county vs. the Illinois Bell Telephone Co., Baltimore & Ohio Railroad Co., Chicago, Burlington & Quincy Railroad Co. and the Illinois-Iowa Power Co. for permission to cross tracks at grade, at a point immediately west of Shattuc, Clinton county.

April 22: Hearing at Springfield on joint application filed by the Illinois Commercial Telephone Co. and Mt. Pulaski Telephone & Electric Co. for authority to discontinue free interexchange service between Warrensburg and Lathan.

April 22: Hearing at Springfield on investigation of records of the Southwestern Bell Telephone Co. for expenses incurred during the month of November, 1941, in the sum of $87.51 pursuant to section 41a of the public utilities act.

April 22: Hearing on investigation of Illinois Central Telephone Co., Clinton, for expenses incurred during the month of November, 1941, in the sums of $158.96 and $79.29 pursuant to Section 41a of the public utilities act.

Kansas State Corporation Commission

April 8: Authority granted Walton Telephone Co. to transfer its franchise and to cease operating as a public utility at Walton.

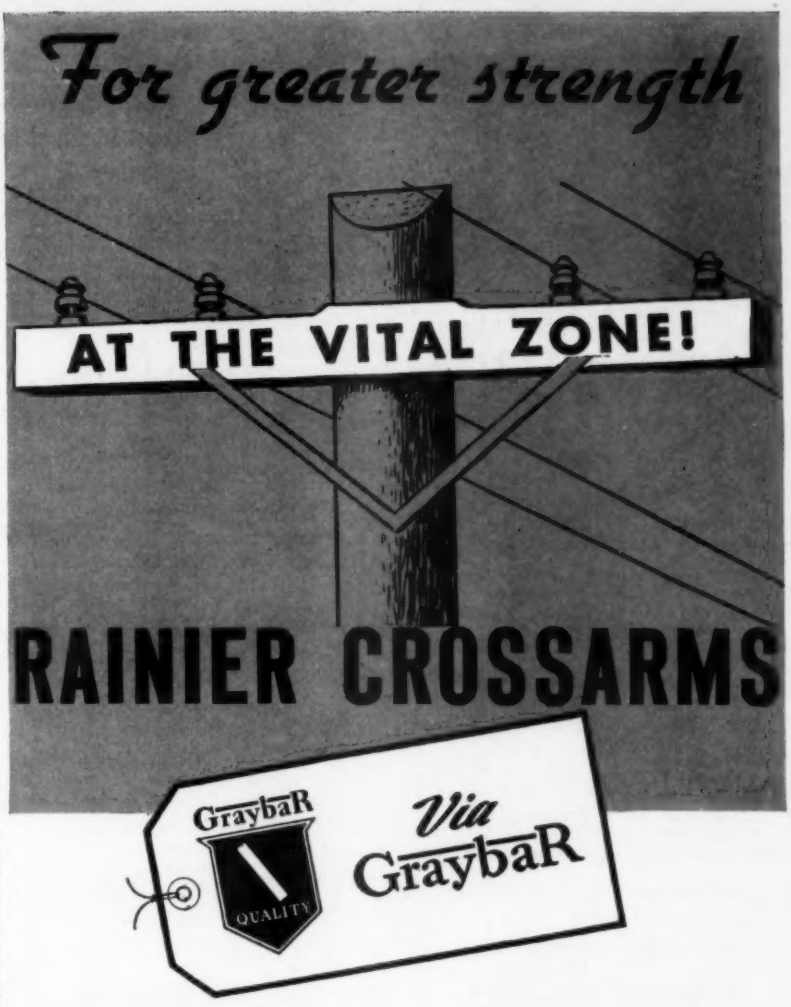
April 9: Authority granted Southwestern Bell Telephone Co. to file revised initial rate area maps of Dodge City, Lawrence, Newton and Wichita, and exchange area maps of Fort Scott and Manhattan.

Minnesota Railroad & Warehouse Commission

April 16: Order issued dismissing application of Mrs. Ernest Kiefer for telephone service from the Morris & Rendsville Telephone Co. to her farm home located in Stevens county.

Nebraska State Railroad Commission

April 20: Applications filed by Nebraska Central Telephone Co., Gibbon, and Comstock Telephone Co., which it leases, for increases in rates at Gibbon, Shelton, Ansley, Berwyn and Comstock, adding $3,457 to revenues and bringing return on properties to 2.06 per cent.

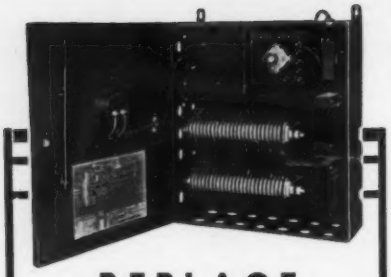


The "vital zone" supporting today's essential lines of communication needs seasoned strength and long-lasting performance. Rainier Crossarms have the uniformity that saves time in erection, and the field-tested ability to hold up under ice and wind loads, storms and other emergencies.

Rainier Crossarms are made of clear Douglas Fir. Scientific control of seasoning adds to the natural strength of the wood. They are practically moisture- and rot-proof. Your GRAYBAR Man can also supply Rainier pins, brackets and other wood pole-line accessories. In fact, he can fill any of your requirements from the "top of the pole to the bottom of the hole".

So, next time you need pole-line items, remember GRAYBAR. You'll get quality products and cooperative service no matter how large or small the item.

GraybaR
in over 80 principal cities
Executive Offices:
GRAYBAR BUILDING, NEW YORK



REPLACE
YOUR BATTERIES
with ELECTROX
RECTIFIERS

• Supplies DC power for all types of telephone equipment.

BATTERY ELIMINATORS — with or without power-off relays for magneto operators' sets.

BATTERY ELIMINATORS—with constant voltage output for PAX and PBX, with or without sub-cycle ringer.

BATTERY CHARGERS — for trickle charging telephone batteries.

AUTOMATIC BATTERY CHARGERS — for exchange batteries.

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2062 Reading Rd. Cincinnati, Ohio

DILLON
DYNAMOMETERS

CAN PROLONG LIFE
OF
WIRE AND MESSENGER

—❖—

OVERTENSION
DESTROYS LIFE
OF
WIRE AND MESSENGER

—❖—

PROTECT YOUR EXISTING
OUTSIDE PLANT

—❖—

MAINTAIN CORRECT
TENSION WITH A
DILLON
DYNAMOMETER

—❖—

W. C. DILLON & CO. INC.
5410 WEST HARRISON ST.
CHICAGO ILLINOIS

With the Manufacturers

Stromberg-Carlson's "Work For Victory" Campaign

Workers of the Stromberg-Carlson Telephone Mfg. Co., Rochester, N. Y., have a full grip on their "work for victory" campaign to produce more vital communications and radio equipment for the armed forces, it was announced April 18 by the joint labor-management committee. The campaign, started 48 hours after Donald Nelson's request to industry last month, has already produced 100 per cent cooperation and enthusiasm from workers throughout the Stromberg-Carlson plant.

First visible evidence of the joint labor-committee's success came when tool-makers, stenographers, press operators, assembly line workers and others throughout the factory submitted 3,340 entries in the "work for victory" slogan contest. Awards in the contest were scheduled to be made on Wednesday, April 22, and the winning slogan will appear on posters, buttons, pay envelopes, etc.

The "work for victory" campaign is being handled by eight members of the joint committee, selected equally from labor management. Subcommittees of equal representation have been appointed to handle contests, production progress, public address systems, transportation, and publicity.

Each committee will attack the morale program from a different angle, with production progress committees determining incentive programs within the factory. War production poster boards, which will dramatize workers' contributions to the war effort, are in the hands of the publicity committee, which will also superintend the selection of war communiques and other material designed to stimulate production.

Already 80 per cent completed by the transportation committee is a survey of the workers' means of reaching the Rochester factory. The committee has also held meetings with local transit companies seeking better and more complete service against the day when

The familiar "V" gets a new twist from three of the attractive "V" girls now taking a large part in the Stromberg-Carlson "work for victory" campaign, which has won 100 per cent enthusiasm and cooperation from labor and management in the Rochester (N. Y.) plant, now building communications equipment for the armed forces. They highlighted the Stromberg-Carlson "work for victory" slogan rally that played an important part in getting the program started.

tires wear out. This committee has also sponsored a "drive your neighbor to work" campaign.

Inter-departmental trophies for the best production performance and best attendance records are being prepared by the production progress committee with a master progress chart showing progress on all government projects installed in workers' dining rooms. The chart will tell workers of production rises in the form of a huge cannon firing on "Tokyo."

Special announcements, news broadcasts, and music will be furnished by the company's new sound system during special hours of the day and night, with special emphasis on fatigue periods. A special system has already been installed in the main dining room to entertain workers during the luncheon hours.

The joint production drive committee recently reported to the War Production Board that the entire suggested WPB program had been undertaken and, in addition, many of the company's own ideas are being included in this campaign.

Executive secretary of the drive is Stanley H. Manson, sales promotion manager. Other members are: Harold Charles, inspector; Lee McCanne, assistant general manager; Sid R. Curtis, plant supervisor; W. H. Hadley, toolmaker; C. E. Angle, production control manager; Thomas Reed, punch press operator, and T. C. Westmiller, drill press operator.

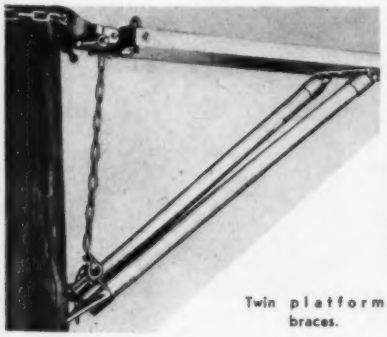
V V

Chance Incorporates Twin Platform Braces

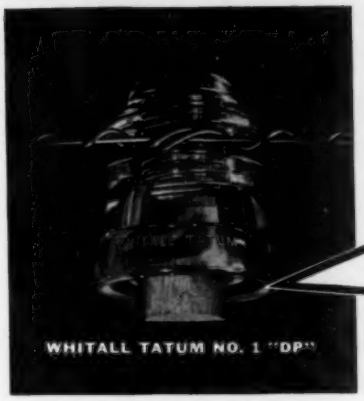
The A. B. Chance Co. has incorporated twin platform braces which increase the security and safety of pole or tower platforms.

The twin brace is made up as a single unit, both poles being attached to a special pole bracket and a platform bracket which fastens to any Tips adjustable platform using the same bolt holes used for the standard single pole brace.

Twin platform braces prevent sidewobble and double the strength of platform braces.



Twin platform braces.



A TOUCH HERE WILL TELL YOU HOW "WT" INSULATORS PROTECT LINEMEN'S FINGERS

PICK up a Whitall Tatum Glass Insulator . . . feel the smooth finish around the edge of its petticoat . . . and you'll notice at once a feature all linemen appreciate. This level, uniform rim is assurance against chipping and broken, razor-sharp edges that mean cut fingers.

That's only one of the many advantages of "WT" Insulators. Other outstanding characteristics are crystal clarity of glass, which guards against malicious breakage; accurate gaging to assure true pin fit; exceptional durability; and the ability to withstand severe temperature changes.

Armstrong Cork Company leaves nothing to guesswork in making "WT" Glass Insulators. Every stage of production is automatically controlled . . . every insulator conforms to A.S.T.M. standards. Your jobber or distributor will give you facts, samples, and prices. Or write direct to Armstrong Cork Co., Glass Insulators Dept., 295 Fifth Avenue, New York City.

WHITALL TATUM GLASS INSULATORS
MADE BY ARMSTRONG

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DICKE POLE LINE TOOLS
Construction men choose Dicke Tools because of their toughness, ruggedness, durability and convenience.
From post-hole digger to pay-out reel you'll find them uniformly satisfactory. They help make construction easier, quicker and more economical.
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1033 WEST VAN BUREN STREET · CHICAGO, ILLINOIS
BRANCH WAREHOUSES AT DALLAS, KANSAS CITY, LOS ANGELES, RICHMOND (VA.) AND SAN FRANCISCO

EVERSTICK ANCHORS...

Speed and ease of installation are features that crews and engineers appreciate in Everstick Anchors. Nut housing locks, anchor firmly on rod — entire unit is installed and expanded in a minimum of time.

Write for new bulletin.

EVERSTICK ANCHOR CO.
FAIRFIELD, IOWA

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"AUTOMATIC"*
SMASHES
TELEGRAPH
SPEED RECORDS

NOW READY

Only POSTAL TELEGRAPH HAS IT! So next time you have messages that *must* get through . . . messages that call for *extra* speed and *extra* accuracy (at *no* extra cost) . . .

CALL
Postal Telegraph

For your convenience, charges for telegrams telephoned-in appear on your telephone bill.

*For descriptive folder — address Postal Telegraph, 157 Chambers St., New York or ask local branch manager.

Ray-O-Vac Enlarges Board of Directors

At the annual meeting of the Ray-O-Vac Co., Madison, Wis., it was reported that the company's 1941 volume of business showed a substantial increase over that of the previous year. A goodly share of this increase, it is said, was due to the increased sales of Ray-O-Vac's new patented "Leakproof" flashlight batteries—now being widely used not only in regular civilian channels, but by the United States and allied armies in flashlight and field telephone equipment in all parts of the world. A considerable portion of Ray-O-Vac production is now going for government and lend-lease requirements.

The stockholders voted to increase the board of directors to nine members and the following were newly elected to the board: Elmer B. Ott, vice president and treasurer; D. W. Tyrrell, vice president; Norman D. Vea, general sales manager. Both Messrs. Ott and Tyrrell have been connected with Ray-O-Vac for a number of years, Mr. Ott as vice president, in charge of operations, and Mr. Tyrrell, as president of the Blake Manufacturing Corp., Ray-O-Vac subsidiary. Mr. Vea went to Ray-O-Vac four years ago from a long experience in the electrical appliance field.

Until recently the headquarters of the Blake corporation have been located at the factory in Clinton, Mass. In order to better integrate all corporation operations, Blake headquarters have now been moved to Madison, and President Tyrrell will make his headquarters in Madison, adding to his duties with Blake a major part of the management of Ray-O-Vac. All flashlight manufacturing will continue at Clinton as heretofore. As in the past, Ray-O-Vac batteries will be produced in the company's two factories — the main plant at Madison and the Lancaster Carbon Co. (subsidiary) plant at Lancaster, Ohio.

Kay Hart, N. Y.
ELMER B. OTT

D. W. TYRRELL

NORMAN D. VEA

V V

Device Safeguards Equipment From Excess Moisture

A dehumidifying appliance being marketed under the name "Water-Sorber" is said to eliminate trouble from excess moisture in cables, protector coils, cut-off relays and voltage leakage. Low humidity is maintained in spaces and buildings where infiltration is at a minimum.

Water-Sorber units are provided with patented dehydrating chemical cubes that absorb excess moisture in the air. No care is needed except to refill occasionally, it is stated.

Compact in size, the No. 2 model illustrated is 12¾ inches in diameter

View of "Water-Sorber," new dehumidifying appliance designed to eliminate trouble from excess moisture in cables, protector coils, cut-off relays, and voltage leakage.

and 34 inches high, weighs 60 pounds, including 40 pounds of chemical. Other sizes are available.

Where quick action in circulating dry air is required, a similar unit, the Water-Sorber circulator is available. This is enclosed in a cabinet with an electric fan to provide circulation and is operated from a light socket. Exact humidity control, if desired, is provided by a humidistat.

This equipment is designed by engineers with wide experience in air-conditioning problems. A number of Water-Sorber units are in satisfactory service in telephone exchanges in different sections of the country. For details write the manufacturers, The General Air Conditioning Corp., 4453 Appleton St., Cincinnati, Ohio.

V V

Graybar Company Reelects Officers

At the annual meeting of the board of directors of the Graybar Electric Co., the following were reelected to serve as officers of the corporation: F. A. Ketcham, former president and now chairman of the board; A. H. Nicoll, president; G. F. Hessler, D. H. O'Brien, E. W. Cashman, vice presidents, with headquarters in New York, and W. P. Hoagland, Chicago, W. J. Drury, New York and A. L. Hallstrom, Philadelphia, as field vice presidents.

E. W. Cashman, vice president, was appointed to serve on the executive committee, joining Mr. Drury, Mr. Hallstrom, Mr. Hoagland, Mr. Ketcham and Mr. Nicoll continuing members previously appointed.

V V

Kellogg Holds Priority Clinics at Conventions

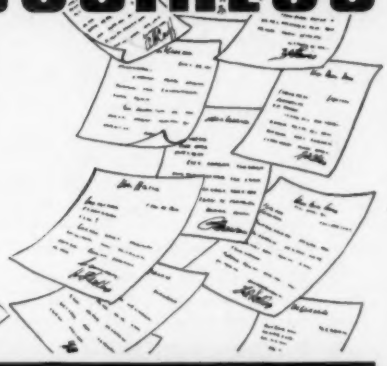
Kellogg Switchboard & Supply Co. will conduct a priority clinic at various state conventions. The meetings will be held in the company's exhibit rooms. Coming conventions at Indiana and possibly Pennsylvania and New York have been scheduled for the clinic. Frank Heyes, Kellogg's priority expert, will be in charge.

Drop Wire—Bridle—Interior—Tree—Ground—Switchboard—Pothead—Cable Terminal—Instrument—Fixture—Buried Wire

We're Proud OF OUR REPEAT BUSINESS

THE thing we are most proud of is our repeat business. Re-orders, year after year, from the same telephone companies we think is proof of the QUALITY of ACORN wire. That, we know is why you too will be 100% satisfied if you specify ACORN.
Parallel or Twisted — Outside, Interior
Bronze — Copperweld — Copper — Iron

ACORN'S exclusive Carton packaging preserves carefully developed QUALITY until installed.



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225 King Street · Cumberland 6-7200 · Brooklyn, N. Y.
Chicago Stock
LEICH SALES CORPORATION
427 W. Randolph - Franklin 2931 - Chicago
Cleveland Stock
LINDSAY SUPPLY COMPANY
4815 Superior Ave. - Endicott 0110 - Cleveland

HUBBARD
POLE LINE
HARDWARE
HUBBARD
Hanan
"Handy to work with", say linemen of Hubbard Pole Line Hardware. That's because these products are scientifically designed for easy handling and fast installation.
"Hang The Load On HUBBARD HARDWARE"

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BRANCH WAREHOUSES AT DALLAS, KANSAS CITY, LOS ANGELES, RICHMOND (VA.) AND SAN FRANCISCO

"Telephony's" Engineering Data

Index, Tools for Telephone Work.
April 25, 1942.
No. 1-B and 1-C, Page 1.

Tools for Construction and Maintenance

Proper tools are so necessary for good telephone construction and maintenance and so often work is hampered by the lack of the right tool that it seems fitting to devote a series of the data sheets to this important subject. It is realized that opinions will differ as to the correct tool equipment for certain work in different localities due to a variation in local conditions. The list offered here as a standard may be varied or changed, as required, to meet local conditions. The amounts may likewise be varied in accordance with the volume of work and the number of men employed on a particular job.

The following tools are suggested for use on outside plant maintenance and construction. Tools for central office maintenance will be considered later in a separate list.

**Used in following table to denote one or more as required.*

Name of Tool	Repairman on Truck	Installer with Truck	Manager Maintainer	Construction Crew	Cable Splicer
Axe, hand	1	1	1	*	..
Axe, chopping	..	..	*	*	..
Auger, earth 8"	..	..	*	*	..
Axle, cable reel, 2"x6'	..	..	1	*	..
Bag, canvas	1	1	2	2	1
Bar, carpenter's, claw	..	..	1	1	..
Bar, digging	..	1	*	*	..
Bar, everstick tamping	..	..	1	*	..
Bar, tamping	..	1	*	*	..
Belt, lineman	1	1	*	*	*
Binder, load	..	..	*	*	..
Block, cable, one sheave	..	..	*	*	..
Block, guy, light	..	..	*	*	..
Block, guy, medium	..	..	*	*	..
Block, guy, heavy	..	..	*	*	..
Block, slack	*	*	*	*	..
Block, eye, snatch	..	..	*	*	..

"Telephony's" Engineering Data

Index, Tools for Telephone Work.
April 25, 1942.
No. 1-B and 1-C, Page 2.

Name of Tool	Repairman on Truck	Installer with Truck	Manager Maintainer	Construction Crew	Cable Splicer
Board, transposition, running	..	..	..	*	..
Bucket, canvas	..	1	*	*	..
Blanket, rubber	..	..	*	*	..
Boots, rubber	..	..	*	*	..
Brush, paint	..	..	*	*	..
Bits, construction auger, ⅜"x18"	1	1	*	*	..
Bits, construction auger, ½"x18"	1	1	*	*	..
Bits, construction auger, ⅞"x18"	1	1	*	*	..
Bits, installer's drill (formerly Syracuse):					
¼"x18"	1	1	*	*	..
⅜"x18"	1	1	*	*	..
½"x18"	1	1	*	*	..
⅝"x18"	1	1	*	*	..
¾"x18"	1	1	*	*	..
Bits, auger:					
$\frac{5}{16}$"x7 5/8" (pole insp.)	..	..	*	*	..
⅜"x7¾" (carriage bolts)	..	1	*	*	..
$\frac{21}{32}$"x8⅛" (machine bolts)	..	1	*	*	..
½"x8" (machine bolts)	..	..	*	*	..
$\frac{11}{16}$"x12" (for ⅝" bolts)	..	..	*	*	..
$\frac{11}{16}$"x18" (for ⅝" bolts)	..	..	*	*	..
$\frac{13}{16}$"x12" (for ¾" bolts)	..	..	*	*	..
$\frac{13}{16}$"x18" (for ¾" bolts)	..	..	*	*	..
$1\frac{1}{16}$"x18" (for 1" bolts)	..	..	*	*	..
Bits, $\frac{11}{16}$"x6 7/8"	..	..	*	*	..

"Telephony's" Engineering Data

Index, Tools for Telephone Work.
April 25, 1942.
No. 1-B and 1-C, Page 3.

Name of Tool	Repairman on Truck	Installer with Truck	Manager Maintainer	Construction Crew	Cable Splicer
Bits, 1¼"x6⅞" (for wood pins)	..	..	*	*	..
Bits, expansion, 1¾"x3"	..	..	*	*	..
Bits, screwdriver	1	1	1	*	..
Brace, ratchet	1	1	*	*	..
Brace, corner	1	1	*	*	..
Blade, hacksaw, 8", 18 teeth to inch	3	3	*	*	..
Blade, hacksaw, 10", 14 teeth to inch	3	3	*	*	..
Blade, hacksaw, 10", 24 teeth to inch	3	3	*	*	..
Blade, hacksaw, 12", 24 teeth to inch	..	..	*	*	..
Blade, hacksaw, 12", 32 teeth to inch	..	..	*	*	..
Blade, hacksaw, 10", 18 teeth to inch	..	..	*	*	..

(To be continued)

Specialists in Repairing and Rebuilding

TRANSMITTERS

Repair service for Transmitters, Receivers, Desk Stands and Wall Phones—Magneto or Common Battery.

Coil winding, enameling and general rebuilding of Telephones, Switchboards and Parts.

We carry in stock: NEW MOUTHPIECES, RECEIVER SHELLS, RECEIVER, DESK STAND AND SWITCHBOARD CORDS AND PLUGS.

The Finest Line of NEW OAK TELEPHONE CABINETS for rebuilding Wall Phones and Desk Sets ever offered and at the lowest prices.—ANY QUANTITY ONE TO ONE THOUSAND.

Obsolete wall phones or parts rebuilt into modern wall or desk phones with new cabinets.

Telephone Repair Co.

Daniel H. McNulty, Manager
"Free Bulletin"

Rogers Park Station **Chicago**

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Cedar Poles
MICHIGAN POLE & TIE CO.
NEWBERRY—GRAND RAPIDS
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PLANT ENGINEERING and CONSTRUCTION

Building and Rebuilding Telephone Plants

Consultation Services

Wiring Jobs, Installations, Switchboard Alterations

Expert Consultants on All Telephone Problems

National Construction & Engineering Company
1031 West Van Buren Street
CHICAGO

Influence of War Considered

(Concluded from page 46)

tion affecting telephone companies. He said that in recent months more members were bringing their problems on priority ratings, taxes, social security, and other matters to the association office for assistance, which was a natural trend in these times. The association gained one new member during the year.

The place of the traffic department in war activities and the secrecy of telephone service were discussed at the operators' conference conducted by Dorothy Brown of the Northwestern Bell Telephone Co. and Merle Markuson and Lauretta Rowley of the Lincoln Telephone & Telegraph Co.

The nominating committee consisted of E. S. Weaver, Scottsbluff, Emil Voliski, Stanton, and J. A. Handcock of Wilcox. H. D. Thompson, Wisner, Paul Grauer, Campbell, and Niel Schreck of Bertrand served as the resolutions committee.

V V

A sign at the Hawthorne (Chicago) plant of the Western Electric Co. is believed to be the largest horizontal fluorescent tubing plant identification sign in the United States.

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

C. M. Christiansen Co., Phelps, Wis.—Northern White Cedar Poles, plain or butt treated. Quotations on request.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants: Beaumont and Texarkana, Texas.

MacGillis & Gibbs Company, Milwaukee, Wis.—Northern White and Western Red Cedar Poles. Plain or butt-treated. Immediate quotations on request.

T. M. Partridge Lumber Co., Minneapolis, Minn.—Northern White—Western Red Cedar Poles. Plain or butt-treated.

Valentine Clark Corporation, 2516 Doswell Ave., St. Paul, Minn.—Finished Cedar Poles. Plain or butt-treated.

LOOMIS ADVERTISING CO.

A SALES ORGANIZATION *Exclusively..*

That Has Never Failed to Produce More Net Revenue (All Costs Considered) for Telephone Companies Served.

IF INTERESTED in more net telephone directory revenue write or call at our expense.

LOOMIS ADVERTISING CO.
Telephone Bldg.,
Kansas City, Mo.
Citizens Trust Bldg., Fort Wayne, Ind.
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ATLANTIC
Creosoting Co., Inc., 17 Battery Pl., N. Y. C.
Creosoted Pine Poles
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PLANTS AND OFFICES:
New Orleans, La. Jackson, Tenn. Boston, Mass.
Winnfield, La. Louisville, Miss. New York, N. Y.
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THE AMERICAN APPRAISAL COMPANY
Appraisals and Continuous Property Records, Original Cost, Depreciation, and Rate Studies
CHICAGO • MILWAUKEE • NEW YORK

Consulting Telephone Engineer
"Modernization of Equipment and Methods for Improved Service"
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Easily and quickly adjusted
A model for every need
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J. G. WRAY & CO.
TELEPHONE ENGINEERS
Specialists in Appraisals, Rate Surveys, Financial Investigations, Organization, and Operation of Telephone Companies
3324 Bankers Bldg., Chicago

Classified Section

Rates 10 cents per word payable in advance.
Minimum charge $2.00 for 20 words or less.

HELP WANTED

WANTED: Female accountant with experience in class B or C accounting for position in Illinois. Give all details as to age, experience, etc., and salary acceptable in first letter. Write No. 9083, care of TELEPHONY.

WANTED TO BUY

WANTED TO BUY: Portable Frequency Meter designed to check the following frequencies: 16, 30, 42, 54, and 66 cycles. Must be in good condition. Give complete description and price in reply. Write No. 9085, care of TELEPHONY.

FOR SALE

TO BE SOLD AT ONCE: Exchange at Spicer, Minnesota, on Green Lake, over 100 phones, gross $3,000.00. Green Lake Telephone Exchange, Spicer, Minnesota.

POSITIONS WANTED

WANTED: Position as manager by middle-aged man. Thirty years' experience in all branches of the service. Prefer exchange where office is in residence. Wife excellent cashier and operator. Prefer Western States. Write No. 9082, care of TELEPHONY.

WANTED: Position as manager, wire chief or trouble man. Twenty years' experience installing and maintaining automatic and common battery equipment. Now employed, best references. Write No. 9078, care of TELEPHONY.

STEWART CABLE TESTER & CABLE LOCATOR COMBINED

Locates all cable troubles except opens. Also locates the exact position of buried cable and just how deep it is buried. Sent on trial.

STEWART BROS.
Ottawa, Illinois

DIRECTORY PRINTING

with a volume that provides specialized attention and economical production—with room for more. Please write.

E. W. STEPHENS CO., Columbia, Missouri

Reconditioned

CONDENSERS

WESTERN ELECTRIC

KELLOGG

STROMBERG-CARLSON

LEICH

MANSBRIDGE

Guaranteed to be free of leakage.

Write for prices.

BUCKEYE TELEPHONE and SUPPLY COMPANY

COLUMBUS, OHIO

Suffers Fracture

ROY WILLIAM AMMEL, Lakewood, Ohio, vice president and general manager of the Elyria Telephone Co., recently sustained a fractured spinal vertebra and cuts about the right leg when his car skidded and hit a mail box.

V V

Ohio Man Retires

After 41 years as manager of the Van Wert Home Telephone Co., Van Wert, Ohio, J. W. LONGWELL has announced his retirement. He will be succeeded by Charles Frick, who has been plant superintendent.

V V

On Boy Scout Committee

LEONARD E. HURTZ, director and former general manager of the Lincoln (Neb.) Telephone & Telegraph Co., has been named on the executive committee of the eastern Nebraska-Iowa directors of the Boy Scouts of America.

V V

Missouri Pioneer Dies

JOEL SPRINGER, 75 years old, who years ago owned the controlling interest in the telephone company at Tipton, Mo., died at his home in that city April 3. He is survived by his widow and three daughters.

V V

Obituary

J. HERON CROSMAN JR., who retired in 1936 as secretary of the Bell Telephone Co. of Pennsylvania and the Diamond State Telephone Co. of Delaware, died April 10 at his home in Ardmore, Pa. He would have been 69 years old next month. He leaves a widow and two sons.

V V

Admits Copper Theft

Law enforcement officials of Aberdeen, S. D., disclosed that they had made an arrest in connection with the theft of telephone and telegraph wires after the lines were leveled by a snowstorm. The man admitted buying 600 pounds of copper wire for $20 and reselling it in Minneapolis, Minn., for $64.29.

V V

British Have Hitler's Number

It still is possible to look up Hitler's telephone number—Berlin 11-6191—in the British "Who's Who," reports the United Press, although chances of getting a call through are right slim. The 1942 edition of the book, published January 16, also covers Mussolini.

MARKING OUR 45TH BIRTHDAY

YOU and KELLOGG... Partners in Progress for 45 Years

That Spring day 45 years ago which marked the founding of the Kellogg Switchboard & Supply Co., is now recognized as a history-making day for the entire Independent telephone industry. For from that day to this, the company's whole existence has been dominated by a single purpose: to serve the Nation by serving Independent operating men with the kind and quality of equipment essential to their best interests.

As one of the first organizations to serve the cause of Independent telephony, Kellogg pioneered many of the important developments now commonplace throughout the communication world. And what the Kellogg laboratory—with its abundant research and laboratory skills—developed, the Kellogg factory—with its precision workmanship and finest manufacturing facilities—produced to highest quality standards. The soundness of that policy is indicated by the fact that so many of today's standards for good telephone service are set by the service given by Kellogg equipment.

Now, on the 45th birthday of Kellogg's "partnership in progress" with Independent telephone men, the Nation is at war. As one of the important sources of communications equipment for the Armed Forces, Kellogg is helping to win the war . . . utilizing the same energy, resourcefulness and skill which has made the name "Kellogg" respected in the whole field of telephone communications.

O THE INDUSTRY

1933

llogg patents the first Non-Positional transer, marking a great and revolutionary step ard in handset transmission.

llogg introduces TRIAD (anti side-tone) circuit establish new standards for telephone reception.

1937

llogg introduces Relaymatic switchboard deipment.

1939

llogg develops a new standard for PBX equipt, offering the highly versatile Type "K" which ishes all types of subscriber services and opes in connection with magneto, common battery ual and dial central offices.

1942

e 45th Anniversary of the founding of Kellogg tchboard & Supply Co. It's now "all-out" for ory, and Kellogg is doing its part in devotmany of its facilities to the manufacture of munication equipment for our Armed Forces. he same time Kellogg is doing its level best elp Independent telephone companies continue ender good service on the home front.

KELLOGG

SWITCHBOARD & SUPPLY CO., CHICAGO

OHIO INDEPENDENTS

Hold "Council-of-War"

By R. C. RENO

Practically every address at annual convention of Ohio Independent Telephone Association devoted to discussion of part the telephone industry plays in the war effort.

THE 47TH annual convention of the Ohio Independent Telephone Association, held in Columbus on April 21 and 22, turned out to be just what Secretary-Treasurer Frank L. McKinney had designated it to be—a council-of-war. Practically every address during the two-day meeting was devoted to a discussion of some angle of the war emergency.

A record attendance of telephone people left the meeting with a better understanding of the part their companies are to play in the all-out war effort being put forth by the entire country today. Each person attending received a clearer comprehension of the important part telephone communications play in the successful execution of the war—both on the "battlefronts and back home."

Lt. Col. Gustav Hirsch, Columbus, was elected president of the association for the ensuing year. Lt. Col. Wm. C. Henry, Bellevue, was re-elected vice president and Mr. McKinney was renamed secretary-treasurer.

The following directors were re-elected: Henry George, Ashland; J. W. Safford, Troy; A. S. Crane, Portsmouth; R. E. Shotts, Columbus, and Ralph Mateer, Warren. John Sidlo, Cambridge, was elected to fill the vacancy caused by the retirement from the telephone business of J. F. Smith, Cadiz.

The convention was opened Tuesday afternoon, April 21, with a welcome by Del Starkey, executive vice president, Columbus Chamber of Commerce, and the response was made by Mr. Safford.

Herman E. Hageman, president of the association, stated in his annual address that after careful deliberation it was decided to characterize the Ohio convention this year as a "Council-of-War." "We are meeting at a time when the very life of our American Republic depends upon a victory at arms over two powerful enemy forces . . ." said Mr. Hageman. "We are fighting on a world-wide front and our situation is the most serious in all American history. It is a time for council and the meeting of minds for whom there is but one purpose and one controlling ambition."

H. E. HAGEMAN

Mr. Hageman commended the telephone people in the state for dedicating themselves to the national emergency and called attention to the tremendous gain in stations by some companies where "the increase in business has come so rapidly as to threaten the exhaustion of available facilities and stocks of instruments. These conditions have been met by telephone management . . ."

It was pointed out that the new business and the increase in corporate revenues had not raised net earnings noticeably because of higher taxes and increased labor costs. The future undoubtedly will bring heavier taxes and may eventually mean higher telephone rates.

"As representatives of Independent telephone companies, furnishing the only communications services that are available within more than 82 per cent of the area of our state, we must . . . protect our communities and their citizens from any possible break-down in services that may be as essential to human existence in the future as they already are to economic well-being," said Mr. Hageman.

In concluding, Mr. Hageman urged that we "devote every ounce

of our energies to doing our jobs just a little bit better than we have ever done them before. The survival of the telephone business as a free enterprise depends upon our skill and efficiency during the months and years immediately ahead of us."

In his annual report Secretary McKinney stated that with America's entry into the war, the telephone industry has assumed the heaviest responsibilities it has ever borne. He told his listeners that the very fate of the nation may hinge upon the availability and continuity of telephone service. He promised that the association would lend every effort to help Ohio Independent telephone companies meet their responsibilities.

He reported that the association is sponsoring a Signal Corps unit, the 92nd Signal Battalion, and that it is already half-filled and the association is assured that it will be completed at an early date.

"The National Outlook" was the subject of an address by Louis Pitcher, Chicago, executive vice president, United States Independent Telephone Association. Mr. Pitcher gave a resume of the problems facing the telephone industry in the present emergency and discussed such subjects as the proposed increase in the federal excise taxes on telephone service, priorities, the L-50 telephone rationing order, the rationing of tires for telephone vehicles, the recently-enacted wire control legislation, etc.

Mr. Pitcher also gave an interesting report on telephone service in England under war conditions, such as replacements of men by women, employment of men operators at night and other changes which have taken place. He urged telephone people to tell the public about their difficulties and to keep the public posted on changing conditions through advertising, inserts with the bills, interviews and other informative means which will result in maintaining better public relations.

Randolph Eide, Cleveland, president, Ohio Bell Telephone Co., gave a most interesting address on "Some Remarks on Current Problems." Mr. Eide reviewed the part the telephone industry played in World War I and reminded his listeners that the industry was not particularly well equipped at that time and the government found it necessary to take over its operations. However, he pointed out that the industry during the past 20 years had gone through its most progressive period, and that today it is well equipped to meet the communications needs of the nation. There is no need for thought as to government operation today, he said.

The telephone industry and its service are most important to and indispensable in the present emergency; take telephone service out of the picture and the chances are we would lose the war, Mr. Eide stated. He warned telephone executives and employes that they have a great responsibility and that they must not leave any stone unturned to meet that responsibility.

Lt. Col. Wm. C. Henry, United States Signal Corps and vice president of the United States Independent Telephone Association, addressed the convention on "The Telephone Industry's Part in National Defense." Colonel Henry stated that the industry is playing a vital part in the war emergency and that the Army depended upon the industry for three specific services: (1) Furnishing equipment and supplies; (2) furnishing trained personnel for the Signal Corps, and (3) providing efficient commercial facilities and services for both civilian and military needs.

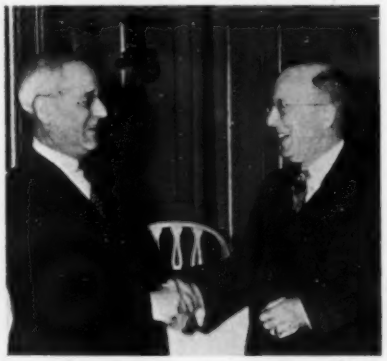
Colonel Henry stated that Maj. Gen. Dawson Olmstead, chief signal officer of the Army, has commended the telephone industry for the way in which it is meeting the demands placed upon it. The colonel reviewed the formation and sponsoring of Signal Corps units made up of Independent telephone men by state associations and individual operating companies which is explained on page 9 of the March 28 issue of TELEPHONY.

The annual banquet and dance was held Tuesday evening. Governor John W. Bricker was the speaker of the evening.

The Wednesday morning session was opened with an address by Bennett Chapell, Middletown, assistant to the vice president, American Rolling Mills Co., on the subject, "After Victory—Then What?" Mr. Chapell outlined the meaning and the advantages of the democratic way of life and stated that it must be the best pattern because our country had grown to be the richest and freest nation in the world.

Now that this way of life is challenged, the American people must put forth every effort to protect it.

(Please turn to page 20)



President-Elect GUSTAV HIRSCH, Columbus, and Secretary-Treasurer FRANK L. McKINNEY, both of Columbus, shake hands to seal a pledge to serve the Ohio Independent Telephone Association and member companies during the ensuing year.

Snapped in a hotel corridor at the Ohio convention are JOHN J. MORAN, Portsmouth, and A. J. STULTS, Chicago, western advertising manager of TELEPHONY.

These genial telephone men were enjoying a chat at the Ohio convention when the cameraman appeared: ROY SIEMUND (left), Chicago, and R. E. SHOTTS, Columbus.

In this group are (left to right): ED. MORGAN, Eaton; GEORGE STEELE, Warsaw, Ind., and E. HAYES, Columbus, telephone engineer, Ohio Public Utilities Commission.